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The Sir Richard Stawell Oration.[1]

SCIENCE AND POLITICS.

By SIR JOHN LATHAM,
Chief Justice, High Court of Australia.

THE Sir Richard Stawell Oration has been founded by Dr. A. E. Rowden White as a memorial to the work and character of Sir Richard Stawell and as a tribute of admiration and affection. Sir Richard was a learned and distinguished leader of the medical profession, a clinical teacher who not only instructed, but also inspired his students, and a successful President of the Royal Melbourne Hospital. I knew him as a friend. We used to go fishing together in many places. You get to know a man when you fish with him. He was scrupulous not to take or to spoil another man's water. When he was fishing he devoted himself entirely to fishing. He observed the sky and the wind, the water and the insects upon the water. He opened his first fish of the day to discover the popular food, and then chose his flies according to the disclosures of the autopsy. In this pastime he displayed those qualities of active eagerness and quick intelligence which were such an attraction to all who knew him. It is an honour and a pleasure to deliver a Stawell Oration.

I would not venture to address this or any other audience upon a technical medical subject. When I received the invitation to deliver this oration, I was about to decline the honour as a matter of course. The task appeared most obviously to be one for a scientist—or, more specifically, a physician or surgeon. Upon reflection, however, it occurred to me that I might be able to say something of interest by way of comparison of the outstanding progress and success of science, and more particularly of medical science in recent years, with the undeniable and conspicuous failure in many respects of politics, considered as the art of government. I propose to submit for your consideration some suggestions as to the reasons for the difference of achievement and attainment in these two vitally important fields of thought and action.

Science has, in the last hundred years, made most striking advances not only in additions to knowledge, but in contributions to human welfare. Science has achieved shining success, and offers promise of almost limitless advance. Science has swept on from triumph to triumph. I mention only some of the discoveries within the lives of most of this audience: in physical science—X rays, radio activity, electrons, protons, neutrons, the wave theory of matter, relativity, the fission of the atom; in medical science—vitamins, insulin, "sulpha" drugs, "Atebrin" and its developments, many new and superior anæsthetics, penicillin, and new techniques in both medicine and surgery. In applied science in the field of invention the progress made in the last sixty years is very wonderful. This period has seen the invention and development of the telephone and the typewriter, the gramophone and the cinema, the motor-car and the aeroplane, radio communication, wireless broadcasting and radar, many new alloys and plastics. Man has become able to do—and to enjoy—many things which before were beyond his reach. Some of these inventions are notable in that they are not concerned with the bare necessities of life—with food and clothing and shelter. The gramophone, the cinema, the wireless, the aeroplane and the motor-car have made great additions to the amenities of life. They have given the masses of the people wider interests. The pictures and radio provide abundance of cheap entertainment—perhaps too much entertainment—for all classes. Never before has the progress of invention made such a contribution to the enjoyment of leisure by so many people, and it is now accepted that leisure is not a right to be enjoyed by only a small section of the people. But during the same period we have seen the invention of the machine-gun, the fighting and bombing aeroplanes, the tank, the V1 bomb, the rocket bomb and the atomic bomb.

While the knowledge possessed by man and his power over nature have increased in a really marvellous manner,

[1] Delivered at Melbourne on October 6, 1948.

his capacity for government, for living in an ordered and rational society of sensible human beings, has diminished, and there is a real fear that civilization may break down and that the world may relapse into barbarism. In spite of all the increases in the means to happiness, the people of the world live in apprehension and anxiety, and many of them in unparalleled suffering and distress. The result of the political developments of this century is that many millions of people find that their safety and security and happiness are threatened and in many cases destroyed. This consequence is due in part to the perversion to evil ends of some of the triumphs of science. In this twentieth century there are more men, women and children oppressed by fear, subject to tyranny, and threatened by, or actually dying of, starvation than at any known time in the history of the world.

Modern inventions, the fruits of science, have made it practically impossible for any people to escape from government or to resist a government. The aeroplane can readily observe the most distant places of the earth. No group of human beings can now retreat into a remote quietness and simply attend to their own affairs, regardless of the world beyond them. There is no outside world. We are all inside one world. No part of any country is beyond the range of observing and bombing aeroplanes or rocket bombs.

Modern weapons give overwhelming power to any government or any group of men which can command them, and the freedom of men and the lives of men in each country depend more than ever before upon the justice and the capacity and the peaceable disposition of governments, not only in their own, but in other countries. But government seems to be on the down-grade in justice and capacity and peaceable disposition. Inside all the countries of the world political differences are becoming more acute and more venomous and less tolerant, and international relations, depending as they do upon politics at the highest level, present at almost every point a wild welter of confusion—a picture of defeat, distress and despair. I ask you to think for yourselves of the misery and suffering of the peoples of Asia and Europe—beginning in Java and the other islands of the East Indies, continuing to various degrees of civil war or commotion in India, Malaya and Burma, the long civil war in China, Japan in foreign military occupation, the Middle East—with Palestine a country of organized murder, and Egypt a victim of xenophobia—Europe with France torn by faction, Italy just emerging from destitution, Germany a land of desolation occupied by quarrelling foreign armies, and the countries behind the iron curtain the scene of purges and assassinations and concentration camps.

Politics, regarded as the means of organizing human relations upon a national or international plane, is more distinguished by failure than by success. The question suggests itself: Why not apply scientific methods in the solution of political problems? The methods of science have been successful in science—theoretical and applied; why should they not be equally successful in the sphere of government?

Science uses observation and experiment, induction and deduction, together with the formulation and testing of hypotheses, as the means of obtaining knowledge of the laws of nature. In physical science relating to inorganic objects, facts can be observed with precision and exact quantitative measurement is practicable. Identical or substantially similar sets of phenomena can be reproduced at will. Observations and experiments can be repeated many times. In physics and in organic chemistry the facts are more under control than in any other sphere of inquiry. But even here the facts which are the subject matter of observation or experiment may be affected by the processes of observation and experiment themselves. The presence of a human body may itself produce an effect. Sometimes, in order to exclude irrelevant disturbance, it is necessary to read recording instruments through a telescope. The organic world, as we ascend in the scale, presents increasing difficulties to the scientist. Vegetables can be observed without becoming upset. Bacteria and the fruit-fly cheerfully reproduce themselves in magnificent disregard of the fact that they are scientific material. But experimental rats, distinguished as they are in the annals of science, may sulk and decline to perform their tricks in the apparatus thoughtfully provided for them. The elephant and the chimpanzee are temperamental, and even the docile domestic animals have their moods. Some animals do not like to be looked at too much. Great contributions have been made to human knowledge by examination of organic structures after life has ceased, but it is often very difficult to make due allowance for the essential differences in response of living and non-living matter. The point which it is desired to make is that the investigation of living creatures presents special difficulties of its own.

These difficulties are multiplied many times when the investigator is dealing with human beings. Human beings generally object to being treated as experimental material, they often resent being observed, and they sometimes change their behaviour when they know that they are being observed. After World War I certain commodities—coffee, cotton, wheat and others—were produced in such quantities that they could not be sold at prices which met the cost of production. Coffee was thrown into the sea, the production of cotton and wheat was restricted by law. These phenomena were described as over-production. Many economists and publicists announced that the problem of production had been solved and that all that remained was the problem of distribution. If this were the truth—and it was proclaimed in many quarters of high authority—why should anyone work very hard? It was obvious that too much work was being done and the remedy was to do less work—and we are seeing some of the results today. The belief that work is a curse and idleness a boon is as old as Adam, who experienced a radical change of circumstances when he was required to work hard enough to get up a perspiration. That belief has always had many adherents and in its most recent manifestations is in part the result of the work of economic scientists. The knowledge of the fact of over-production, as it was called, naturally resulted in a widespread diminution of production. Observation and examination of what human beings are doing may cause them to do something else.

Mere expectation that events will occur in the future may help to bring about those events. A prediction may so operate upon the mind as to make the prediction come true. A patient who is told that he is going to get well, and who believes it, often has a better chance of recovering than one who believes that he is going to die. Similarly one way towards creating an economic depression is to predict it in season and out of season. I use these words advisedly, because it is sometimes necessary to tell the people unpleasant truths—but it is important to be sure that they are truths. A false statement that an event has happened may, in the case of matters capable of being changed by human action, actually produce the event. In the police strike in Melbourne in 1923 the extension of the strike was largely brought about by telephone messages to each suburban police station that all the other stations were already on strike. The promulgation of these false statements made them come true. In one attempted revolution in Austria the insurgents gained control of a broadcasting station for about half an hour. The revolution had almost failed, but the broadcasting of confident assertions that it had succeeded and that the Government had abandoned office very nearly turned a failure into success.

On the other hand—a prediction—and a well-founded prediction—may be falsified simply because the prediction becomes known to those concerned. Jonah prophesied that Nineveh would be destroyed as a punishment for the sins of the people. The people repented and Nineveh was not destroyed. But if Jonah had predicted that this would happen, it is an open question whether the people would have repented and whether the city would have been saved.

Human beings do not stay put while others are speculating about them. If there is an inquiry into the cost of living for the purpose of determining whether wages should be increased, there is a natural tendency to spend more money, or to appear to spend more money, in order to secure an increase.

In human affairs there is not only the difficulty of ascertaining and evaluating the causes which may operate upon minds: there is also the fact, to which I have already referred, that human beings possess a power or faculty which has been denied to the inorganic world and to all organisms lower than man in the scale of creation. Men can tell lies—deliberately and for a purpose. The lower animals are greatly inferior to man in this respect. Some of them have protective coloration or rely on camouflage, and a bird will try to lead an intruder away from her nest. But they cannot really tell lies like men. Lying is an instrument which is habitually used by most people in some races and by some people in all races. The physical scientist is not troubled by a fear that his material has deliberately distorted itself. But in politics, both national and international, facts are frequently deliberately distorted. I remember one politician in Australia who, in praise of the electioneering efficiency of the party to which he belonged, said: "The other fellows may have a fine policy, but we have the poison cart." It is soothing to believe "*Magna est veritas et prævalebit*", but experience tells us that the loud voice of confident asseveration, or of indignant denial, as the case may be, very frequently prevails over the simple truth, and still more frequently over a truth which either is opposed to the interests of some individual or group or which presents some features of complexity which can be grasped and understood only at the cost of what is to many the unaccustomed operation of thinking. The technique of mass propaganda should now be well enough known to put us on our guard—but this is far from actually being the case. The French psychologist Le Bon, who was the pioneer in the study of the mob mind, truly wrote: "An assertion, pure and simple, divorced from any argument (*raissonnement*) and without proof, is one of the most secure methods of penetrating the mind of the masses with an idea." Hitler knew all the technique. He said that he believed in using the big lie, repeated again and again, and broadcasting gave him a world circulation. When, as in some countries, listening to broadcasting from abroad is a crime, the modern dictator can manipulate the mind and the will of the people with ease and facility, without being inhibited by any considerations of veracity or morality which it is possible to ignore. It is not only the tyrant and dictator who can do these things. A perversion of democracy may result in similar activities with similar consequences. The strange identification of democracy with a claim that the rights and powers of the parliamentary majority for the time being are unlimited may lead to the establishment of a new form of tyranny.

The politician, whether he be a statesman or only a politician, is concerned with practical matters. He has a policy which he desires to put into effective operation. In order to put any policy into operation, whether it be good or bad, he must obtain power, and some men will stop at nothing to gain power. In order to accomplish his objective, the politician has to take into account what may be called the actual merits of a particular problem, but he has also to take into account in varying degrees, according to the character of the community in relation to which his functions are discharged, the attitude of the people towards him and his policy. It is useless for him to attempt the impossible. He must limit himself to what is practicable. He must very often be content with the second best. He is not an inquirer after abstract truth. He cannot be content with the intellectual acceptance of some proposition. What he wants is active support and enthusiasm. The great thing is to overcome objection or resistance and to secure adherents. This objective may be sought by fair means, but it is sometimes—especially in recent years—pursued by means of violence and fraud. Even a dictator relies upon the support of his people. If a political leader exercises his functions in a democratic state it will be necessary for him to persuade the people to adopt his policy. In either case he will seek to operate upon the minds of the people by inducing them to accept for one reason or another the proposals which he makes. He may appeal entirely to their self-interest. He may proceed upon an enlarged consideration of social welfare. He may, however, pretend to do the latter, but really be acting in his own interests or in the interests of a limited section of the people. In all cases it will be important to him to bring about an acceptance by the people of his policy. Accordingly, he is most concerned to implant in the minds of the people beliefs which will lead them to support, or at least to submit to, his policy.

The beliefs which people actually entertain, whether they be true or false, are part of the material of the economist, the social philosopher and the politician. A false belief is a psychological fact and is as much an existing fact as a true belief. If a politician can persuade a sufficient number of people to believe in him or his policy he accomplishes his object, whether or not he and his policy are based on honesty and truth.

The scientist as such is concerned only with the discovery of truth. The politician is concerned with getting something done or preventing something from being done. The object of the scientist is to discover and apply the laws of nature. All of those who are responsible for governmental action might agree in saying that the object of all their actions was the promotion of the welfare and happiness of the people, but it may well be that in many cases they would not be speaking the truth and that their object was to promote their own interests or those of some group of persons with whom they are associated. Further, there is much bona-fide difference of opinion, first as to what constitutes welfare and happiness, and secondly as to the best means of promoting these desirable objects. Accordingly, a political problem is essentially different from a scientific problem.

The scientist is concerned with the discovery and the application of laws of nature. A government, through its legislature or otherwise, makes laws as it thinks proper. There is an essential difference between a law of nature which describes the characteristics and the relations of natural phenomena on the one hand, and on the other hand a law which is prescribed for the purpose of controlling human behaviour. They are both called "laws", but they are radically different in all their characteristics. A law of nature accurately stated can be expressed in universal form. Rules of conduct, however, have to be applied in so many varying circumstances that it is often very difficult indeed to express them in a universal form. Even the duty of telling the truth is not regarded as preventing the misleading of an enemy in time of war by the publication of false statements. Deceit of an enemy by appearing to attack in one place and actually attacking in another is not condemned as immoral. Nor would most people consider themselves guilty of reprehensible behaviour if they misdirected an assassin who was pursuing his intended victim. But, further, some rules which are stated in a universal form are not really intended to apply according to their terms. An appeal to come early to avoid the crush would, if all complied with it, result only in there being an early instead of a late crush. We are urged to avoid travelling at peak periods and to travel at other periods, but if we all obeyed the direction or request the result would be merely an alteration of the times of peak periods. Thus a distinction has been drawn between autocentric rules and koinocentric rules. The former rules relate to individual behaviour and are intended to be absolute—the categorical imperative of Kant; the latter rules relate to behaviour of groups or classes and are not expected to be observed by all of those to whom they apply. Thus rules prescribed by governments for human conduct are laws, but they are laws in a completely different sense from that in which we speak of laws of nature. The scientist may discover the former by investigation of facts—but the latter are made by men, in all kinds of circumstances and for all kinds of purposes.

Even if it is agreed that the object of the statesman is, or should be, the welfare and happiness of the people, such a statement makes but little contribution towards the definition of either the sphere or the character of his efforts until it is known who the people are whose interests he is proposing or is supposed to serve. Generally speaking, men disclaim responsibility in a region which is beyond their power. The government of a country is the government only of that country, and not of other countries. The interests of one country are frequently opposed to the

interests of other countries. A man who is a loyal citizen will put the interests of his country before those of other countries, though he will have to take into account their attitude towards his country if he desires to avoid conflict and war. Thus a statesman may quite honestly put in the second place the interests of people over whom he has no control, even though he is willing to act in an enlightened manner. If he is dishonest, in what he chooses to consider the interests of himself or his country, he may deliberately create disturbance, division and distress among other peoples.

In Ciano's diary, 1939-1943, there are particularly frank statements of what is called realist policy. On January 8, 1939, he wrote:

> Every possibility of dissolution and breakdown of other peoples should be encouraged and assisted by us at the proper moment.

On April 10, 1939, with reference to Albania:

> I have long discussions with many chiefs; the most stubborn are those from Scutari (who have been incited by the Catholic clergy). It will be easy to convince them, however, as soon as I distribute bundles of Albanian francs, which I have brought with me.

On July 28, 1939, referring to alleged fears of Turkey in the Balkans:

> I shall get Ansaldo (journalist) to write on this question. I don't expect too much, but it is always worth while trying to revive certain old hatreds which are not entirely dead.

Goebbels wrote in his diary on March 2, 1942, with reference to India:

> We are doing everything possible to pour oil on the fire without being caught at it.

Among the documents disclosed at the Nuremberg Trials was a direction given by Hitler for the engineering of "incidents" and the stimulation of disorder in Czechoslovakia in such a way as to make it possible for him to pretend that the Czechs were persecuting the Sudeten Germans.

But it is not necessary to go to international affairs for the purpose of illustrating the proposition that it may be part of a policy to create ill-will and misery. In more than one country of the world today efforts are being made to induce or compel people to abandon one system of government and adopt another, the means utilized being the creation of suffering, so that people will desire a change at almost any cost.

That which a government uses and must have, is power. Ambitious men who are high-minded wish for power for the sake of the good that they can do. Many men wish for power simply for self-satisfaction—the pleasure of ordering other people about, the gratification derived from assertion of personality at the cost of others. Many desire power for what it gives in the way of opportunities for gaining wealth at the expense of other people. There are men in the world who are unscrupulous and malevolent and who will stop at nothing to gain their end. Argument and persuasion are of no avail with the pure selfseeker, the bully, or the gangster. He can be dealt with only by superior force. There are those who still believe that all questions can be settled by rational discussion at a table or in a meeting. Should the householder be expected to discuss with the burglar how much he should take? In international affairs there are similar occasions. Lord Salisbury once said that if one country desires to eat another country and the other country objects to being eaten, there is no room for mutual accommodation.

Problems of this kind are far away from the region of science and scientific investigation.

Science provides knowledge of many kinds which may be used or misused in the government of mankind. Economic and social investigation in particular is essential to effective government, whether that government be intelligent and disinterested or self-centred and dishonest. We are accustomed to hear exhortations to raise our standards of personality, not only in intelligence, but in ethics and æsthetics. But there are governments which deliberately pursue a contrary policy. Consider the attitude of Germany towards the States which she conquered. Germany adopted a calculated policy of destroying the people of intelligence—the leaders of the people in the community generally, and particularly in the universities and schools. When a protest was made against these cruelties, Dr. Ley, the German Minister for Labour, said: "We will confer upon Czechoslovakia the blessings of illiteracy." All of this, as I have said, takes place in a world far removed from that of the scientist, who honestly, and without perversion of fact, or attempt to mislead any person, seeks the truth.

The methods of science will not in themselves solve any political problem, because science in itself cannot define an objective towards which policy is to be directed. Science is impartial in relation to the use to be made of its achievements. They may be used for ends which are good or for ends which are evil, but science provides no means of distinguishing between good and evil.

The difference between the problems of science and those of politics may be illustrated by taking as an example the applied sciences of medicine and surgery. The doctor begins by diagnosis. He ascertains as well as he can the condition of the patient in relation to health and disease. He may have to take into account many facts—physical, physiological, pathological and psychological. Upon an evaluation of all relevant material he determines as well as he can the character of the disease or other trouble from which the patient is suffering.

He then proceeds to prognosis—to inference as to the probable development of the condition of the patient—and finally he makes up his mind as to treatment, as to the remedy to be applied.

Generally the doctor has the cooperation of the patient. The patient knows that the doctor knows far more about his disease than he himself can possibly know. He relies on the knowledge, the experience, the skill and the disinterestedness of his medical adviser.

All these procedures are directed to and assume the acceptance of a single objective, namely, the promotion of the health of the patient. All medical science is directed towards the prevention or cure of disease. There is no doubt as to the desirability of this objective; the object is definite and clear.

How different is the spectacle in the political arena! In the first place, when it is sought to diagnose a social or political evil which may be dealt with by political measures, it often appears that what is an evil in the opinion of some people is a good in the opinion of others. There is no general agreement as to the nature of the welfare of society and, as I have pointed out, even unhappiness, misery and suffering are sometimes regarded as objects to be promoted in the course of political endeavour. Within a community there are many conflicts of interest between persons and between groups of persons. So also the interests of different countries of the world are often fundamentally divergent and inconsistent.

As already stated, the mere inquiry into facts sometimes changes the facts themselves and invites suppression or misrepresentation. Accordingly, the ascertainment of the facts and the diagnosis of an ill in political affairs present great difficulties. Prognosis—always an inference as to the future—is still more uncertain when the facts are uncertain and difficult to ascertain. Prognosis or prediction in social affairs may itself bring about its own falsification.

If there were general agreement as to what constituted the welfare of mankind, it might be left to high-minded and suitably trained scientists to determine the best means of attaining such welfare. But men have been thinking about social and economic and political problems for many hundreds of years without reaching agreement. Light can be obtained from Aristotle up to the last numbers of *The Times*, *The Manchester Guardian*, *The Chicago Tribune* and *Pravda*, but the lights shine in different directions.

Science and scientific method can provide information, and most valuable and necessary information. But the problems of politics, national and international, cannot be solved by scientists as such. There is, however, one thing which the art of government can learn from science; namely, the scientific spirit—a disinterested devotion to

truth. We should develop our methods of training and education—in the home, the school and the university—with the definite and deliberate object of forming minds which accept propositions as true only after a careful and thorough ascertainment and examination of as many relevant facts as possible, and after fair reasoning from those facts. Beliefs should be based upon evidence. It will never be the case that all people will be prepared to sacrifice to truth what appear to be their immediate interests, but the scientist can do much, by precept and example, to increase the number of those who are resolved to seek truth and pursue it, and so to promote the fundamental virtues of honesty and integrity.

I am fully aware that I have spoken of only some aspects of a large subject. Before summarizing what I have said I think it well to make three observations upon some other aspects to which I have hitherto made no reference. In the first place, I have considered the scientist strictly *qua* scientist. A scientist is also a citizen and he has the same political rights and duties as other citizens. This is perfectly obvious, but I mention it to prevent possible misunderstanding. The scientist forms and expresses his own opinions on political subjects: he votes at elections, he may become a member of Parliament, he may become a Minister. His trained capacity should help him in his consideration of political problems—but it remains true that political problems are, for reasons which I have tried to state, very different in character from the problems which present themselves to the scientist. In the second place, scientists—even if they were all agreed on some particular matter of public policy—have no more right than any other section of the community to use their place in the national economy as a pressure group to compel the adoption of a programme, national or international, which they may for the time being favour. A community which allows itself to be so controlled is no longer a self-governing people. It is on the road either to anarchy or to the totalitarian State. I do not pause to work out this conclusion—I leave it for your own reflection. In the third place, I have said nothing about the obligation resting upon a scientist, who has undertaken scientific work affecting the national safety, as the servant of the Government and as the servant of the people, and has promised to preserve secrecy with respect to the work upon which he is engaged. The mere statement of the question which arises would appear to answer it—but as, since this address was prepared, this subject has become a matter of political controversy, I pass it by.

In this address I have endeavoured to show that, when the scientist approaches human problems in connexion with which scientific method may be usefully applied, he meets difficulties of peculiar complexity, but that science has a great contribution to make towards the solution of political problems. Science provides information and means for effective action in all the varied departments of human activity. In this way science helps towards the formulation and putting into operation of wise and successful policy. The results of science may immediately suggest a solution of a recognized practical problem—or may disclose the true nature of a problem which has been misunderstood. Further, science depends upon reasoning based upon faithful and disinterested ascertainment of evidence to serve as the basis of conclusions which are not affected by passion or prejudice. Self-interest and many kinds of emotion are the springs of human action, but they are not safe or proper guides in the impartial estimation of evidence. It is the duty of scientists to try to educate the people so that they may, as far as possible, act upon evidence and not under the influence of passion and prejudice. But it is beyond the scope of science to prescribe objectives for political action. For this we must rely principally upon the knowledge and experience, the skill and judgement, and the sense of fairness and justice of leaders and teachers, who can influence and sometimes direct the people towards worthy ends. The members of any organized community are dependent upon the work and the goodwill and the sense of social responsibility of their fellows. The various communities of the world have become more and more interdependent. At all times the fortunes of the people of any country have been greatly affected by the policy and the actions of its neighbours. The effect of modern inventions in reducing the significance of distance has been to increase both the number and the importance of our neighbours. We can therefore see that the future of civilization depends more than ever before upon the character, intellectual and moral, of those in all countries who are responsible for the government of the people. We can make our contribution by doing our best to place men of quality and character in charge of our affairs.

AN OUTBREAK OF GINGIVO-STOMATITIS AMONGST AUSTRALIAN TROOPS IN JAPAN.

By ROGER DUNLOP,
Major, Australian Army Medical Corps, Sydney.

SOON after the arrival of Australian troops in Japan an epidemic of gingivo-stomatitis broke out among them. Between February and August, 1946, a brigade, whose average strength was 4200, suffered 764 cases, 108 of them forming the basis of this report. The disease was remarkable for its severity and for the large numbers affected. From the military standpoint it was necessary to control the epidemic, reduce the infectivity, and above all treat those affected and return them to duty as soon as possible. In this communication it is proposed to deal with the ætiology, clinical features, diagnostic pitfalls, and results of treatment applied.

CLINICAL FEATURES.

All patients in the present series were males in the age group nineteen to thirty-five years. The maximum incidence lay in the group nineteen to twenty-three years. The older patients appeared more prone to a milder type of infection.

Lesions were classified according to anatomical situation and degree of severity. This was difficult in many cases, owing to their diffuse nature. The main sites of infection were the gums and tonsils. Of the 108 cases presented, the number in each group was as follows: severe gingivitis 33, mild gingivitis 62, tonsillitis 13.

It was noted that the state of oral hygiene had an important bearing on the severity and course of the disease and the response to treatment. In order to evaluate this factor, arbitary classification of mouths was undertaken. This was based on the following points: (i) condition of gums—tone, colour, recession and pocket formation; (ii) evidence of inadequate cleansing, staining, presence or absence of tartar and salivary calculi; (iii) malocclusion of teeth and other anatomical factors leading to gingival disease. In group I the mouths were considered to have good hygiene. In Group II the mouths were considered to show evidence of bad hygiene. The number of cases in each group can be seen from the accompanying table. The number of relapses were taken from the total figure in each group.

TABLE I.

Group.	Mild Infection.	Severe Infection.	Tonsillitis.	Relapse.
Group I	23	9	7	2
Group II	39	24	6	8
Total	62	33	13	10

Determination of the incubation period was difficult, and although contact with Japanese females was considered the primary cause of infection, there were a small number of men who definitely denied all contact. The possibility of droplet infection cannot be entirely ruled out. From

observation of the acute cases, it would seem that the incubation period varies from five to fifteen days. This varies in inverse ratio to the severity.

Mild Gingivitis.

There were 62 cases of gingivitis classified as mild; 19 of the patients gave a history of previous infection. Constitutional symptoms were mild or absent. The main complaint was soreness of the gums associated with hæmorrhage on eating hard food or cleaning the teeth. Spontaneous hæmorrhage was not noted. Many patients complained of a dry metallic taste in their mouths.

The characteristics of the infection were as follows.

1. A bluish-red swelling was present, pronounced at the gingival margins and involving the interdental papillæ. The tissue was tender and friable and bled easily.

2. Ulceration and sloughing were present in approximately one-quarter of the cases; they were mild in character, and localized usually over some area of gingival abnormality.

3. Fœtor was present in every case.

4. The sites of infection are summarized as follows: the total number of cases was 57; generalized gingival infection was present in 14, anterior involvement in 25, right-sided involvement in six and left-sided involvement in 12, The predominance of anterior infection is possibly explained by (*a*) lack of masticatory stimulation, which normally occurs over the lateral gingivæ, and (*b*) kissing, which is more likely to lead to infection of anterior gingival tissues.

5. Involvement of other oral structures, mainly the buccal mucosa and the hard palate, was common. The palatal lesions usually commenced as follicular spotting with much redness and swelling, later breaking down to form ulcers. The lesions in the early stages closely resembled the enanthem of measles. This appearance was most often associated with anterior gingival lesions. The tonsils were red and swollen in these mild cases.

Severe Gingivitis.

Thirty-three cases were classified as severe. According to the character of the lesions they were subdivided into local or generalized types. The former took the form of abscesses situated around an erupting wisdom tooth, while the latter involved the majority of the stomal tissues.

Generalized Stomal Infections.

A constitutional reaction was a predominant feature in cases of generalized stomal infections. The patients were admitted to hospital acutely ill, the manifestations resembling those of an acute upper respiratory infection. The temperature varied between 100° and 104° F., with a morning fall and evening rise. Headache, generalized aching pain, malaise and other symptoms associated with febrile illness were noted. Anorexia was common. The majority of patients commented on severe loss of appetite, commencing some days prior to their admission to hospital. Treatment rapidly restored the appetite. Prostration and weakness were pronounced in severe cases. Two patients were stuporose on their admission to hospital.

With regard to oral symptoms, the commonest complaints were as follows. The gums were painful. The pain was dull and aching, and was made considerably worse by the taking of food, fluids or condiments. Trismus was seen in two cases. Hæmorrhage was severe and often spontaneous, patients complaining of the constant taste of blood in their mouths, and of finding blood on the pillow on waking in the morning. All patients complained of a foul taste. *Fœtor oris* was often described subjectively, but was far more noticeable to the examiner. In cases dealt with in Tokyo the fœtor could occasionally be detected when the patient walked into the examination room. Sialorrhœa was noted by few patients, but was evident on examination.

The oral signs may be summarized as follows. All patients exhibited ulceration in varying degrees. Follicular "spotting" commencing in the central portion of the gum was the earliest sign. These spots consisted of a central white necrotic area surrounded by an area of redness and swelling. The lesions spread rapidly to the peripheral gingival tissues, and broke down with the formation of large ulcers covered in a pasty yellow slough, which could be easily removed to reveal a bluish-red bleeding surface. Coalescing of the ulcerated areas occasionally occurred, and there was much destruction of interdental tissues. Patients presented in all stages of ulceration, but this was the usual progression of events. The gingival tissue was very friable and bled easily if touched. Lymphadenopathy was noted in all cases, the anterior cervical glands being most affected. The glands were tender and slightly indurated. In one case the enlargement of the submandibular chain was considerable, and was accompanied by brawny induration of the deeper tissues of the neck. Involvement of other structures was as follows. In the palate the lesions were similar to those seen in the mild cases. With regard to the buccal mucous membrane, one patient showed diffuse sloughing ulceration from the angle of the mouth to the tonsillar fossa. Other patients showed somewhat less diffuse lesions.

Localized Stomal Infections.

Seven patients showed abscess formation around an erupting wisdom tooth. The constitutional reaction was usually severe. Pain similar to that of toothache and sore throat were the chief symptoms. Ulceration was the predominant sign and appeared to surround the erupting tooth and involve the contiguous gingival and buccal surfaces. The anterior pillar of the fauces and the hard palate were involved in two cases. Much suppuration and tissue destruction occurred, and the cavity formed was filled with a thick yellowish green pus.

Tonsillar Infections.

Thirteen patients with tonsillar lesions were noted. Six had associated gingival infection, and of these two had a relapse within one month. The predominant distribution of infection is as follows: bilateral, three cases; left tonsil, nine cases; right tonsil, one case. The reason for the predominance of left-sided infection is unknown. Bilateral lesions numbering 25% appears to be a high figure, as most text-books describe the infection as unilateral.

Constitutional reaction was moderate, being limited to coryza-like manifestations, with anorexia, fever and prostration. In the cases associated with tonsillar involvement and other oral lesions it resembled the picture described above. In the cases of simple angina sore throat was mild, some patients even denying that they had a sore throat, but complaining bitterly about a painful lump in the neck. Dysphagia was slight.

The main sign was ulceration. This invariably involved the middle portion of the tonsil or either pole. The ulcer was deep and crater-like, and well defined. According to the severity, the zone of reaction surrounding the tonsil was limited to the tonsil itself, or it involved the fauces and part of the soft palate in an angry red swelling. The slough was yellowish-green and thick, and could be removed to reveal a bleeding surface. Lymphadenopathy was present in all cases. The glands were tender to palpation.

The following history may be of interest, as it indicates the severity of the disease.

The patient was admitted to hospital complaining of severe pain referred to the neck, the angle of the jaw, and behind the ear. The pain was intense and throbbing in nature. His gums had been bleeding for the previous seven days, the constitutional reaction was severe, and he was almost comatose on his admission to hospital. His temperature was 103° F. He appeared acutely ill, with greyish pallor, trismus and profound exhaustion.

On examination of the patient, the lateral aspect of the neck was swollen, tender and indurated. The anterior cervical glands were tender and enlarged. Examination of the mouth was difficult, but the following signs were noted. Behind the lower left third molar there was an abscess involving the tooth socket, the surrounding alveolar margin and the buccal mucosa and extending onto the tongue. Much œdema and swelling were present in the surrounding tissues. The gingival tissues were inflamed and ulcerated,

and the left tonsil was completely replaced with necrotic slough. The fauces and palate were red and swollen. A diagnosis of acute Vincent's angina was made, and the possibility of extension to the deep cervical tissues was considered. The administration of penicillin in divided doses of 40,000 units every three hours to a total of 500,000 units was commenced. The patient was discharged from hospital, cured, within eight days.

THE DIFFERENTIAL DIAGNOSIS.

Oral inflammations are seldom clinical entities and often are merely a reflection of underlying symptom complexes. Their diagnosis therefore demands the recognition of various systemic diseases. The diagnosis is theoretically complicated, but from a practical viewpoint easy, especially during an epidemic. Certain rare conditions, notably the blood dyscrasias, must always be kept in mind; among these are the acute leuchæmias, agranulocytosis, infective mononucleosis, and other conditions in which oral disease occurs. During this outbreak most concern was felt about two diseases, syphilis and diphtheria. A brief consideration of the difficulties relating to these diseases follows.

Syphilis.

The problem in relation to syphilis was threefold. Firstly, there was the high incidence of syphilis among the population. With this went a high exposure rate. Secondly, there was the problem exemplified by the following clinical history:

The patient had sore gums and sore throat; twelve days earlier he had had intercourse with a woman at Hiroshima. He felt feverish and ill prior to his admission to hospital. He had no previous history of Vincent's infection. He had had four attacks of gonorrhœa in the past five months, all treated by penicillin. Owing to frequent intercourse and repeated attacks since his admission to hospital, no serological examination had been performed and no final test of cure obtained.

This type of case aroused apprehension; but since it was almost impossible to determine the likelihood of incubating syphilis, further therapy likely to obscure or entirely suppress the early manifestations of syphilis was not unjustified. This appears to be a rather unequivocal statement. At the time of the outbreak the effect of small doses of penicillin on incubating syphilis was unknown. It now appears that normal serological surveillance at three months and six months will detect any syphilitic infections that may have been rendered latent.

The problem relating to the use of penicillin locally appears to be of a different nature. Two similar clinical histories are given.

Two men having had intercourse with the same women developed penile lesions. They reported to the regimental aid post and denied intercourse. Unfortunately the medical officer took them at their word and did not submit material for dark field examination. Instead they were treated with local applications of penicillin. The sores healed rapidly, and no further investigations were carried out. Five months later both men reported to the treatment centre with florid secondary syphilis.

It is reasonable to suppose that the primary lesions had occurred five months previously. This suggests that some danger may exist in the local use of penicillin for the treatment of undiagnosed ulceration.

Thirdly, the recognition of oral syphilis was difficult. The value of clinical observation when the two diseases may be present in the same mouth is sadly overrated.

Diagnostic difficulties are well illustrated by the findings on the examination of 28 girls from a brothel at Hiroshima. All of them appeared to be suffering from chronic gingivostomatitis, and in eight cases only was any suspicion felt about the presence of syphilis. However, a serological check was carried out, and 17 were shown to be suffering from syphilis.

Non-availability of dark-field apparatus increased the difficulties. Diagnosis depended then mainly on suspicion, and on onward movement of suspicious cases. The following lesions were regarded with suspicion: (i) ulceration at or near the muco-cutaneous junction, a site not favoured by the fusospirochæte during this outbreak; (ii) ulceration or moist patches on the tongue; (iii) ulceration of fauces, soft palate or tonsils without evidence of suppuration. Many men with such lesions were sent on, but as was discovered later only a small percentage gave positive results when examined for the *Treponema pallidum*. The problem was complex; but it was believed that much could be achieved by strict attention to complete physical examination, especially of the cutaneous and mucous surfaces and lymph nodes. A serological check similar to that carried out in the surveillance of gonorrhœa was also of assistance. This was not carried out if the patient was under surveillance for previous venereal disease.

Diphtheria.

Diphtheria was less of a problem, though from an epidemiological point of view it was essential to establish early diagnosis. Again the local or general exhibition of penicillin was dangerous, since it was apt to produce recession of the local lesion without eliminating the chances of subsequent visceral lesions such as myocarditis or neurological disorders. Two cases are quoted.

In both cases the diagnosis of Vincent's angina was made, and each patient received 200,000 units of penicillin; one patient received in addition oral medication in the form of pastilles. Local signs and symptoms rapidly cleared and the patients were discharged from hospital. Both reappeared some weeks later, one with peripheral neuritis and the other with palatal palsy. These were considered to be of diphtheritic origin.

These patients were shown at a clinical meeting at the Indian General Hospital.

Other Conditions.

Interest was focused on the anginose type of infective mononucleosis during this epidemic. At the height of the epidemic, a small number of cases were encountered. Some authors consider that in all cases Vincent's infection is a typical manifestation of mononucleosis. The two conditions may have a common ætiology, but it seems doubtful whether they can be described as one and the same disease. Unfortunately no heterophile antibody agglutination tests were carried out on the patients in this series. Blood counts showed no suggestive mononuclear increases.

TREATMENT.

The situation at the time of the outbreak was difficult. The problem of limited hospital accommodation, of high rate of sickness, and of overworked and understaffed dental units had to be solved if the efficiency of the force was to be maintained. The need then was a therapeutic agent which would combine simplicity of administration, effectiveness and short stay of the patient in hospital. Penicillin, it was thought, would fulfil these desiderata. However, little was known of its action in this disease, and there was little chance of obtaining access to the literature. Accordingly, so that various methods of administration might be given a trial, treatment as set out hereunder was initiated.

Methods Employed.

All patients in this series were admitted to hospital and assigned to a special ward. Full isolation procedure was carried out. Smoking was not allowed.

Local treatment was as follows in all cases.

1. Mouth washes were given five times daily after food, and prior to the use of penicillin; normal saline solution was used.
2. The teeth were cleaned at similar times, under the supervision of an orderly. Gum massage was avoided, and only light brushing was used.
3. Dental treatment consisted of examination by the dental officer prior to and at the completion of therapy.

Penicillin was administered according to schedules as set out hereunder. In the early stages patients were allotted at random to each schedule. Later it was found that certain of the methods were more effective than others, and the majority of the patients were assigned to these schedules. From the point of view of obtaining a

statistical comparison, this was unfortunate, but efficient treatment and rapid return to duty were the main considerations.

Schedule A.—The patients were to have penicillin pastilles once every two hours, commencing at 7 a.m. and discontinuing at 9 p.m. The composition of the pastilles was as follows: glucose 60 grammes, starch 20 grammes, gelatin 40 grammes, potassium citrate two grammes, penicillin crystals 100,000 units, distilled water *quantum sufficit*; 100 pastilles were made. The pastilles were kept refrigerated at 5° F.

Schedule B.—The patients were to have two millilitres of penicillin spray, 2000 units per millilitre every two hours, for the same periods as in Schedule *A*. Unfortunately no atomizer could be obtained, and a syringe and needle were adapted for the purpose. All four quadrants of the mouth and each tonsillar fossa were sprayed. The patient was instructed to hold the spray in his mouth for at least five minutes. The spray was made up with normal saline solution and kept refrigerated.

Schedule C.—The patients were to have 100,000 units of penicillin in divided doses of 20,000 units every three hours. Because this dosage was inadequate, the minimum dosage was later fixed at 300,000 units, and the maximum at 500,000.

Modified Schedule A.—Modified Schedule *A* was similar in all respects to Schedule *A*, except that ascorbic acid was given as a routine measure, 25 milligrammes three times a day, increased to 75 milligrammes if there was any evidence suggestive of vitamin deficiency. Also intramuscular injections of penicillin were given if required.

Examination and Criteria of Cure.

Daily oral inspection was carried out by a medical officer. Inspections at the beginning and end of treatment were also carried out by a dental officer. The final decision regarding cure lay with the dental officer, who carried out a complete inspection of the mouth and initiated whatever treatment was required to prevent relapse. The medical officer was responsible only for the treatment of the acute phase; clearing of this was judged by the disappearance of fœtor, slough and ulceration. Smears were taken daily from the infected areas, and were examined by a competent pathologist. Clearing of the acute phase was not judged complete until the examination of three successive smears gave negative results. Negative smear findings were not considered decisive evidence of cure; if the condition was clinically active, more treatment was given.

Comment.

Clinical improvement refers to clearing of slough, disappearance of fœtor and commencement of healing. This invariably preceded the appearance of negative smear findings by twenty-four hours, except in the mild cases. The length of stay in hospital averaged between five and eight days. This is probably too long, and is the result of observing patients until three consecutive daily smear examinations gave negative results. It is believed that patients could have been discharged from hospital within twenty-four hours after the first negative smear finding, provided that no further activity was apparent.

Response to Treatment.

Severe Gingivitis.

The response to treatment in cases of severe stomatitis was excellent. Relief of local and general symptoms had usually begun within twenty-four hours. Manifestations of toxæmia disappeared rapidly. Patients who had lost their appetites for two or three days prior to their admission to hospital were usually demanding a substantial meal on the day following the commencement of therapy. Pain was also relieved rapidly, the rate depending upon the method of administration of penicillin.

One patient admitted to hospital with a severe infection complained of sharp aching pain referred to the jaw, which had kept him awake for two nights. He was having treatment with pastilles, but the condition was not responding. Intramuscular injections of penicillin were commenced, and the patient said that within two hours of the first injection the pain subsided. A search failed to reveal evidence of caries.

Pastilles were usually effective in relieving the generalized dull aching pain of a diffuse infection.

The disappearance of signs was slower, fœtor and slough being the first to disappear, followed later by granulation of the ulcers, and finally clearing of the redness and swelling. In very severe infections there was much tissue destruction, especially of the interdental papillæ. In some cases actual tissue loss was evident; in others, the tissue was friable and bled easily. Firm granulation was long in appearing, and hæmorrhage was pronounced. These signs suggested a vitamin *C* deficiency. Severe infections with localized ulceration involving an erupting wisdom tooth responded similarly to angina. However, parenteral administration was more effective. Little difference was noted in the treatment times for the different methods of administration. Modified Schedule *A* and Schedule *B* appeared to have the shortest times, but this is not valid statistically, since all the severe infections were treated by Schedule *A*. For instance, eight of the twelve patients required additional parenteral therapy, and ten had evidence suggestive of nutritional deficiency. Of those treated by Schedule *A* two required additional parenteral therapy, similarly one patient in Schedule *B*. Two-thirds of the patients treated by Schedule *C* required supplementary therapy with pastilles. The reason was undoubtedly

TABLE II.

Type of Infection.	Type of Treatment.	Number of Patients.	Number having Penicillin by Intramuscular Injection.	Lesions Suggestive of Vitamin Deficiency.	Days in Hospital.	Days Before Negative Smear Findings.	Days Before Clinical Improvement.
Severe gingivitis.	Modified Schedule *A*	12	8	10	7·5	4·0	3
	Schedule *A*	7	2	—	8·5	5·5	3
	Schedule *B*	9	1	—	7·5	4·0	3
	Schedule *C*	3	3	—	8·5	5·5	5
Mild gingivitis.	Modified Schedule *A*	19	—	2	7·0	3·5	4
	Schedule *A*	19	1	4	5·5	2·0	3
	Schedule *B*	13	1	—	7·0	4·0	5
	Schedule *C*	5	5	—	6·0	4·0	5
Tonsillitis.	Modified Schedule *A*	6	1	0	8·0	5·0	4
	Schedule *A*	1	0	0	6·0	1·0	1
	Schedule *B*	2	0	0	5·5	2·5	3
	Schedule *C*	3	3	0	5·5	2·0	3

low dosage; but even when the minimum dosage was fixed at 300,000 units, local treatment was occasionally needed to clear the infection. It is difficult to know why this should be; suffice it to say, however, that no matter what form of treatment was used, the best results were obtained by combining local and general therapy. The condition of oral hygiene did not appear to influence the response to treatment. The relapse rate was low, two of 33 patients relapsing within 30 days.

It appeared that parenteral therapy by itself was of little value in small doses, and though effective in large doses, was wasteful. Of the local methods of treatment, pastilles appear to be equally as efficient as the other method, but have the added advantage of simplicity of administration. Further, their therapeutic action can be prolonged by virtue of their composition. In very severe cases combined local and general therapy appears indicated. If general therapy is used, then the minimum dosage must be not less than 300,000 units.

Mild Gingivitis.

In mild gingivitis relief of symptoms was similar to that in acute severe infections. The condition of oral hygiene played a dominant part in determining the response to treatment. Thirty-seven of the patients had poor oral hygiene, and were kept in hospital for a period of eight days, compared to five days for those patients with clean mouths. From a therapeutic point of view patients can be divided into two groups. Patients with mild infections and good oral condition responded well to all forms of treatment. They were extremely unlikely to relapse, and required little prophylactic treatment. Patients with mild resistant infections and poor oral hygiene did not respond well. They required vigorous treatment in the acute phase, showed a tendency to exacerbation of the lesion, even under treatment, and were very prone to relapse. Figures show little difference in treatment times by the various schedules, but it was observed that penicillin spray and parenteral therapy alone were not as efficient as the use of pastilles. If the infection was not responding to local therapy, then no hesitation was felt in using penicillin by injection in large doses. The importance of adequate dental prophylaxis in these cases cannot be overstressed.

Tonsillitis.

Response in the tonsillitis group was similar to that in severe gingivitis. Healing was usually complete within five to seven days. Organisms disappeared rapidly from the slough. In one case, within six hours of the first injection, no spirochætes could be seen. In this group neither a statistical comparison of the value of local or general therapy, nor a comparison of treatment times, can be made owing to the small numbers of cases in each group. Also the majority of patients with angina received local therapy alone, while patients with gingival lesions received combined therapy. These patients were responsible for treatment delays; all had poor oral hygiene, and two of the three relapsed within one month. The lesions of the tonsil cleared rapidly, and were healed usually before the gingival lesions showed improvement.

Patients with simple angina treated by local therapy showed good response, disappearance of slough and early healing being evident. Administration by injection gave a similar but quicker response. A total dosage of 100,000 units appeared to be sufficient. Only in the cases of diffuse severe involvement of the tonsils and other oral structures did a higher dosage appear justified. Further, it is thought that uncomplicated angina responds to local therapy as quickly and efficiently as it would to parenteral administration.

Factors Affecting Treatment.

Condition of the Mouth.

Subjects with poor oral hygiene usually showed evidence of decreased tissue resistance, despite adequate therapy and subsidence of the acute phase. This evidence was as follows: (i) persistence of redness and swelling over the gingival surface; (ii) residual inflammation in areas of deep pocketing (this was probably responsible for exacerbation during and relapse after treatment); (iii) hæmorrhage and soft friable granulations forming after infection had subsided (this may have been due to vitamin deficiency); (iv) the frequent development in cases of angina with bad oral hygiene of gingival infection.

Thirty-one patients were kept in hospital for a period averaging ten days, the minimum being eight days and the maximum nineteen days. Twenty-seven of these had mouths classified in Group II. Ten of the 27 relapsed within six weeks. It is reasonable, then, to suppose that the factor of poor oral hygiene decreases the efficiency and increases the duration of treatment. These patients must be vigorously treated, and no hesitation should be shown in using local and general therapy together. Once the acute phase has subsided the mouth must be put in order; if this is not done the condition is likely to become chronic.

Tobacco Smoking.

Smoking had an adverse effect on treatment. Heavy smokers with good oral condition were slow in responding if they continued to smoke during treatment. No figures are available, but a practical demonstration of the effects of nicotine was observed. After their admission to hospital, patients were placed on an honour system. This was satisfactory for some weeks, but later was flagrantly abused. This state of affairs continued for about a fortnight, and it was noted concurrently that lesions were not responding to treatment. At the time there were about 30 patients in the ward, the majority of them smokers. At first deterioration of the penicillin was suspected; but it was soon realized that heavy smoking was the cause. The resistant lesions rapidly cleared after the confiscation of tobacco and rigorous control of all patients. Smoking was then forbidden, and all tobacco was confiscated prior to the patient's admission to hospital. It was thought that the control of smoking, possible under isolation conditions, considerably enhanced the efficiency of treatment.

Vitamin Deficiency.

It appeared that with a powerful antibiotic such as penicillin, the acute phase of the infection was eradicated rapidly despite the presence of vitamin deficiency. However, those patients with deficiencies showed evidence of impaired healing, manifested by delayed granulation, poor tissue tone and other lesions. The use of full doses of ascorbic acid in these cases is justified, since it may improve the healing process. The use of ascorbic acid does not appear justified for patients without evidence of vitamin deficiency. It had no effect on treatment times or on the healing of lesions. There is much loose thought regarding the therapeutic use of vitamins, some authorities advocating its use in all cases of Vincent's infection, as though it was a universal panacea. It is of value only when there are definite indications for its use, and then it may possibly assist the process of healing. Used in association with penicillin, it will certainly not assist in eradicating the infection. Deficiencies of other vitamins such as riboflavin and nicotinic acid play their part in oral infections; but until such time as this is clearly elucidated, their therapeutic use does not appear justified unless definite lesions are present.

Relapses.

Of 108 patients in this series, nine relapsed within one month and one within six weeks. Two patients relapsed three times within six weeks, and were regarded as incurable unless drastic dental therapy was undertaken. They required total extraction, and since this was not carried out, nothing beyond treating the acute phase could be done. Eleven of these 12 patients who relapsed showed poor oral hygiene.

A relapse rate of 9% in this series was considered reasonably good. No comparison of relapse rates among patients treated with other agents is available.

No type of treatment in the acute phase will prevent relapse. Relapse can be prevented only by adequate oral rehabilitation following subsidence of the acute phase.

Inadequate Treatment.

Thirty patients had treatment lasting longer than eight days. As was mentioned previously, the chief factor in this prolongation was poor oral hygiene. However, it is thought of these cases that 21 underwent adequate treatment and nine underwent inadequate treatment. In these latter cases the infections were allowed to drag on for days when it was quite obvious that no benefit was arising from treatment. It is believed that, had treatment been intensified, these patients would have shown rapid improvement.

THE NATURE OF THE INFECTION.

Bacteriological Findings.

Predominant organisms seen in smears taken from the lesions were the *Treponema vincenti* and the fusiform bacillus, and as a rule the more severe the infection, the greater the predominance of the spirochæte in the smears examined. Associated organisms were occasionally noted, mainly cocci and bacilli which were not identified.

It would be opportune at this point to discuss the ætiological significance of the fusospirochætes. There is little evidence to suggest that these organisms are transmissible; some investigators hold that transference of infection occurs, but this has never been substantiated. It is difficult to imagine anaerobes as the prime movers of a highly contagious and easily transmissible disease, especially organisms of the low external viability possessed by the spirochæte. The following three facts noted during this epidemic suggest that the fusospirochætes are not the primary invaders. (i) A small number of men denied all contact with Japanese women. They were suffering from a severe infection, and stated that a number of men from their sleeping quarters had been admitted to hospital with a similar complaint. Spread most likely occurred by droplet infection, since experiments carried out in an attempt to isolate the fusospirochætal group from contaminated eating and drinking utensils proved fruitless. (ii) During the administration of 3·6 mega units of penicillin some patients developed acute severe Vincent's infection. This is unlikely to have occurred if the primary infective agents were the fusospirochætes, since, as will be shown later, these organisms are extremely sensitive to penicillin. (iii) Experiments carried out by air force medical officers failed to produce evidence of transmissibility of these organisms. The position is best summarized by Soll, who makes the following statement:

> Acute disease of the mucous membrane of the mouth constitutes one of the most confused fields of medical interest, and the one most in need of clarification and classification, along etiologic and pathologic lines. This need for enlightenment is particularly pertinent because of the general tendency to attach the diagnosis of Vincent's infection to most instances of acute stomatitis or gingivostomatitis. . . . The fusospirochetes have now been relegated to the ashcan of etiologic oblivion where they probably belong.

Now that the fusospirochætes have been disposed of successfully, it is thought, as likely to be of primary importance, two questions remain to be answered. Firstly, what is their significance? Secondly, what is the nature of the primary invader? To the first it can be said that they are secondary invaders causing necrosis and destruction of already damaged tissue. This was amply demonstrated during the present epidemic, and is readily borne out by the response to penicillin treatment. It cannot be agreed that these organisms are harmless invaders as has been stated by some authors.

Let us consider the answer to the second question.

The Virus Theory.

Recent work by many investigators leaves little doubt that the majority of cases of infective gingivo-stomatitis in infants are caused by a virus. The following summary of their work is given by Soll in discussing the Stevens Johnson syndrome:

> In the past 10 years Youmons, Perrin Long, Burnett and Williams, Dodd, Johnson and Buddingh, and Scott and Steigman, have separated a new clinical entity, herpetic stomatitis, from the waste basket of forms of stomatitis described previously and proved its causation by the virus of *herpes simplex*. These authors described an acute gingivostomatitis in infants and a few adults, isolated the virus by inoculation into the corneas and brains of rabbits, proved its identity with the herpes virus by protection tests on animals and demonstrated rising protective antibody titers in their patients. Black fulfilled the postulates of Koch by inoculating the virus into the mucous membrane of infants, thereby producing the disease. The various authors agreed on the term infectious or herpetic gingivostomatitis for the condition as revealed in their cases, but varied somewhat in their description of clinical observations. Some disagreement is recorded as to the identity of aphthous stomatitis, catarrhal stomatitis and membranous stomatitis with Vincent's stomatitis; fusospirochetal gingivitis, trench mouth and ulceromembranous stomatitis. However, Scott and Steigman sensibly commented that 30 descriptive terms are used to classify the various stages of herpetic stomatitis. According to these authors, two types are noted. The acute disease which is a systemic infection characterised by fever, irritability, soreness of mouth, red swollen gums, oral fœtor and regional lymphadenopathy. The primary finding is a tiny vesicle, which ruptures, becoming a shallow round ulcer, sometimes covered by a membrane. It may merge with adjacent ulcers. These lesions are most frequently found on the buccal and lingual surfaces, but may also be present on the gums or anywhere else in the mouth or pharynx. The gums usually become red and swollen and bleed easily, and marginal ulceration develops. Lymphoglandular enlargement is a constant feature and usually persists for some 4-5 weeks. The disease is acute and self limited and usually runs its course in six to sixteen days. Scott and Steigman pointed out that trench mouth or Vincent's stomatitis in adults is due for an urgently needed re-investigation in the light of the aforementioned observations.

It may be asked whether there is any evidence suggestive of virus ætiology to account for the outbreak under discussion. The clinical features enumerated hereunder are suggestive, but lack proof.

1. The subdivision of cases resembled that of Scott and Steigman; they fell roughly into the two groups—acute severe and mild recurrent types.

2. The clinical features of the two groups are similar. They will not be enumerated again in detail; the salient features such as constitutional upset, lymphadenopathy and progressive stages of the ulceration are too strikingly similar to those observed by Scott and Steigman to be mere coincidences. The following clinical history may illustrate this similarity.

> The patient was admitted to hospital complaining of painful, bleeding gums. Nine days previously he had had intercourse with a Japanese woman. Physical examination revealed a mild inflammation of the gingival tissues with no constitutional manifestations. No organisms could be discovered in the inflamed areas. Treatment was commenced with penicillin pastilles, but the condition grew worse. Small white spots surrounded by an area of redness and swelling appeared, followed by vesiculation and eventually by frank ulceration and slough formation. Organisms could not be isolated even at this stage. On the eighth day the patient became very ill, and complained of severe pains over the angle of the jaw. His temperature rose to 104° F., and twenty-four hours later a large abscess over and behind the lower right wisdom tooth commenced to drain.

This and other cases do suggest a virus ætiology. The point to remember is that in this disease the early stages were rarely observed. When they were, the description of Scott and Steigman was valid.

3. The occurrence of cases of infective mononucleosis of the anginose type during the epidemic, together with the appearance of exanthems and enanthems in cases of gingivitis not dissimilar to those occasionally observed in infective mononucleosis, suggests that these two diseases may have a common ætiology.

Points of dissimilarity mst be briefly mentioned.

1. The main brunt of the infection in the series described by Scott was borne by the tongue and buccal surfaces. In the present outbreak there was no involvement of the tongue and little involvement of buccal mucosa.

2. Scott describes the infection as being self-limited. In this outbreak mild infections tended to become acutely severe if left untreated for more than four or five days. If they had been left untreated for fourteen or more days, some would possibly have cleared; but a very small number might have terminated fatally.

Despite these dissimilarities, the evidence suggests that Vincent's infection occurring in adults and infective gingivo-stomatitis of children possess a common ætiology.

THE EPIDEMIOLOGY.

Four important factors were apparent in the spread of infection during this outbreak: (i) the lowering of individual resistance among troops leading to a susceptible population; (ii) the presence of a reservoir of infection among the Japanese population; (iii) intimate contact between the two groups; (iv) a spread due to methods other than intimate contact. A brief discussion of these factors follows.

The Lowering of Individual Resistance.

The majority of troops serving in Japan during the early stages of the occupation had seen long and arduous tropical service. Many were suffering from the effects of active or latent tropical disease, such as malaria, ankylostomiasis, and to a lesser extent, amœbic dysentery; further, the sudden change from the heat of the tropics to the depth of a Japanese winter did not improve their general health. The incidence of malaria reached a peak after the discontinuance of suppressive treatment, as also did the severity of the disease and the incidence of relapse. Bronchopneumonia became a frequent accompaniment of benign tertian malaria, and some patients were admitted to hospital regularly once a month over a period of six months. Ankylostomiasis was observed in 31% of those admitted to hospital. Few of the sufferers exhibited clinical manifestations of the infection, but loss of appetite was a common complaint among the troops, owing possibly to a combination of the infection and unpalatable food. Diseases of the upper respiratory passages were prevalent and the complications numerous. These, then, were factors which might have been expected to lead to a general lowering of resistance, or to indicate that such a general lowering was already present, and which might well have played an important part in making the subjects more susceptible to infection.

Diet in the early stages, though it provided adequate Calories and bulk, consisted largely of canned and dehydrated foods. Issues of fresh food were few and far between, and furthermore, lack of variety militated against an adequate food intake. The difference between what troops are given to eat and what they actually consume may be considerable. If a diet is monotonous and unpalatable, the troops will not eat it, but will subsist sometimes for considerable periods of time on bread, jam and heavily sugared tea. It was most enlightening to attend mess parades and observe what was left over after the meal. The left-overs often comprised a large portion of the vegetable content of the diet, together with various dried or canned fruits—all foodstuffs with a relatively high vitamin content. Vitamin tablets were available, but were rarely taken. In short, it is reasonable to suppose that the dietary habits of a large percentage of the troops led to a low intake of the water-soluble vitamins. Of the 108 patients in this series, 18 exhibited oral lesions suggestive of scurvy. Gingival erosion, sponginess and severe hæmorrhage were the main manifestations. These often persisted after all infection had cleared. One patient showed general symptoms. Some of my medical colleagues were of the opinion that many of the skin lesions seen during the summer of that year had a scorbutic background. These consisted of purpuric spots, and in a few cases ecchymoses which rapidly cleared when ascorbic acid was administered in full doses. One patient exhibited signs suggestive of pellagra—lesions of the dorsum of the hand which were raised, pigmented, scaly and erythematous. However, neither glossitis nor cheilitis was present. Mention must be made of the occurrence of black tongue, which was observed after the administration of penicillin. The ætiology of this condition is not established beyond doubt. Some writers state that it appears only when penicillin is administered in the presence of subclinical pellagra, and that the subclinical deficiency is further increased by the destruction of organisms which inhabit the colon and there synthesize nicotinic acid. However, it seems hardly likely that penicillin administered orally would retain its potency until it reached the colon. Other writers suggest that black tongue is of local ætiology, and is due to the inhibition by penicillin of nearly all the normal bacterial flora of the mouth which allows free growth of the *Aspergillus niger*, the mycelia of which give the tongue its characteristic black appearance. In this outbreak, patients receiving penicillin orally showed this black appearance of the tongue, while those having parenteral therapy usually did not. This was an interesting observation in view of other evidence of vitamin deficiency.

There were two factors of minor importance in lowering individual resistance. The first was the unfavourable climate. Troops arrived from Morotai in the depths of winter. The mean temperature at the time of their arrival and for two months thereafter was 39° F., with occasional spells of "zero" weather. This was followed by a hot, humid summer. The second factor was the bad living conditions. The troops were living in unheated barracks, and in most cases were without adequate winter clothing.

The Reservoir of Infection.

Among the population chronic gingivo-stomatitis appears commonplace, especially among the poorer and more destitute classes. In July, 1946, an examination of a brothel on the outskirts of Hiroshima was made. This has been already referred to in the section on differential diagnosis. A similar oral status was also observed in Japanese personnel employed around the camps. The Japanese habit of hissing when indulging in social intercourse would seem to be an expression of the fœtor common to gingivo-stomatitis and to the Japanese people. This polite indrawing of the breath leads to more harmonious relationship between the Occidental and the Oriental.

A geographic incidence of disease was noted. A large number of patients seen admitted to frequent intercourse in the Hiroshima area. Their disease appeared to be more severe than that of patients infected in other areas. This became more obvious when the brigade moved to Hiro, leaving some units at Kaitaichi near Hiroshima. The units left behind had a high incidence of severe cases. A similar situation arose when an Australian battalion went to Tokyo in May of the same year. The inference is, then, that a population reduced to a low economic and nutritional status is more prone to infection and tends to suffer from a chronic oral infection which is readily transmissable. Conversely, troops stationed in prosperous areas where there was a plentiful food supply showed a low incidence and minimal severity of the disease.

Intimate Contact.

That intimate contact was an important factor in the transmission of the disease is readily attested to by the fact that in the first twenty weeks of the occupation, contact with Japanese females was on an unprecedented scale. The following figures give some idea of this:

Average weekly strength	4,300
Total number of attendances at ablution centres	14,600
Total number of cases of venereal disease	1,150
Average weekly incidence	59
Total number of cases of gingivo-stomatitis	540
Average weekly incidence	27

As the incidence of venereal disease decreased, so did that of gingivo-stomatitis, and when the weekly rate of venereal disease had fallen to between 10 and 20 cases, the incidence of Vincent's infection was almost nil.

Evidence of Non-Venereal Spread.

Evidence of non-venereal spread has been mentioned in the previous section and will not be discussed further.

It is submitted that the two factors of prime importance were increased susceptibility of the military population at risk, and the reservoir of infection amongst the civilian

population. The incidence and severity of Vincent's infection decreased towards the end of 1946 and became a thing of the past in 1947. This was attributed to the following factors: (i) decreased rate of sexual exposure; (ii) control of infectious disease among the Japapnese population (the class of women with whom the troops had frequent contact received special attention); (iii) improved economic and nutritional levels among the Japanese people; (iv) improved general health of troops, due to better living conditions, better diet, and the replacement of troops from Morotai with healthy reinforcements from Australia. Going one step further and postulating that the disease is caused by the virus of *herpes simplex*, we note a close correlation between the work of authors mentioned above, especially that of Scott and Steigman on gingivo-stomatitis of infants, and the findings in this epidemic. (i) The contagion rate was high. Of Scott and Steigman's patients, 50% had a history of contact. In this outbreak 70% of men had a history of intimate contact. (ii) Of patients who recovered from the disease in Black's series, a percentage showed the virus in their saliva for two to seven weeks after complete healing of the lesions. This indicated a carrier state, and may possibly explain the reason for non-venereal spread in this outbreak. (iii) Scott *et alii* showed that the virus of *herpes simplex* lives in almost perfect symbiosis with man, and that the host showed evidence of infection on only two occasions, first at the time of initial invasion, second when host resistance was lowered. This is significant when viewed in the light of findings in this outbreak. Further to this, other investigators have shown that the initial primary invasion is accompanied by acute symptoms which confer a life-long immunity on the patient, whereas subsequent reinfection is accompanied by mild manifestations which reveal a tendency to relapse. Similar findings are noted in this outbreak. Finally, it may be stated that factors of epidemiological significance indicate that this outbreak was probably of virus origin, though it must be admitted that the evidence is on an *a priori* basis.

Prophylaxis.

In prophylaxis two factors have to be considered: (i) the prevention of epidemic disease, (ii) the prevention of relapse following treatment of the acute phase.

The prevention of epidemic disease is difficult owing to the obscurity of the ætiology. If action is taken on the supposition that the disease has a virus origin and is highly contagious, the prophylaxis will be that of any highly infectious upper respiratory disease. To these basic desiderata the following should be added:

1. Strict attention should be paid to cleanliness in messes and canteens, with particular emphasis on eating utensils. Facilities should be made available for sterilization of mess gear, and troops should be instructed to use no other than their own gear.

2. Attention should be paid to oral hygiene. Inspections should be carried out by dental officers and education of troops undertaken.

3. All patients should be isolated. This is important, in that smoking is controlled, better treatment is given and the chances of spread are reduced. Had this method been uniformly adopted in Japan, the magnitude of the outbreak would have been lessened.

4. In this outbreak the control of Vincent's infection was the control of venereal disease. This disease is highly infectious and is easily transmitted by intimate contact. A high incidence of Vincent's infection and venereal disease, and frequent intimate contact with a diseased populace, are facts too strong to suggest coincidence. Discussion of venereal disease control will be undertaken in a subsequent communication. In addition to the normal methods of venereal disease prevention, the use of mouth washes was instituted in ablution centres. The main agents used were a weak solution of "Dettol", or a one in 10,000 solution of potassium permanganate.

5. Improvement in general living conditions, diet *et cetera*, must also be taken into consideration while instituting preventive measures. The use of prophylactic ascorbic acid is of doubtful value.

The Prevention of Relapse.

The prevention of relapse is a matter for the dental officer. However, its importance cannot be stressed too often. If good results are to be obtained, it is absolutely essential to correct the oral condition after subsidence of the acute infection. Penicillin offers a rapid therapeutic method of overcoming the acute phase of an oral infection. The final cure of the infection lies with the dentist.

Comment.

It has been shown that penicillin is effective in the treatment of gingivo-stomatitis. The mode of action is unknown, but theoretically it may be as follows. The primary virus invasion is self-limiting. There is rapid production of a high antibody titre, leading to a humoral immunity. Black has shown, in the infection of infants, that the virus can be isolated only in the early stages of the disease. The body, having overcome the virus infection, leaves penicillin to eradicate the fusospirochætal infection. This is accomplished by virtue of its spirochæticidal effect, and eradication is rapid and efficient provided adequate dosage is maintained.

Penicillin must not be regarded as the complete answer to the therapy of this disease. It will clear up the acute phase of infection, but naturally has no effect on anatomical deformities. Dental prophylaxis offers the only chance of permanent cure in the latter case.

Local therapy by means of pastilles is the most efficient method of administration. This should be reinforced by parenteral administration, according to the initial severity of the disease or the response to treatment. When penicillin is used by this method, the minimum dosage should be fixed at 300,000 units. In the case of simple angina, 100,000 units are sufficient.

Care must be taken in the local use of penicillin for undiagnosed ulcerations. Syphilis and diphtheria must always be excluded prior to the commencement of treatment.

Finally, it is suggested that the use of penicillin supersedes other methods of treatment for two reasons. (i) It reduces the time of treatment to five days, a fact of importance when one is dealing with a large-scale outbreak under military conditions. (ii) It offers a simple method of treatment, and above all it obviates the need for meddlesome therapy during the acute stages. Picking and probing of inflamed tissues do more harm than good. *Primum non nocere* is a therapeutic doctrine all too sadly neglected, and one which can be followed to the full in the treatment of acute infection with penicillin.

The importance of maintaining the general health of the patient and of treating debilitating disease needs no comment here.

It may be said that the evidence of virus ætiology is sufficient to warrant further investigation. Under conditions of active warfare, an epidemic of this nature may be disastrous. Only when the causative agent is known can effective preventive measures be instituted. In civil practice, clarification of the role of the fusospirochætes in mucous membrane infection is long overdue.

Summary.

An epidemic of Vincent's infection among Australian troops in Japan is reported; 764 cases occurred between February 12 and August 9, 1946. Observations of 108 cases form the basis of this report.

It is suggested that the primary ætiological agent was a virus. Evidence is quoted suggesting a relationship between the ætiological agent of infantile gingivo-stomatitis and that of Vincent's infection. This requires confirmation.

The clinical features of the disease are described. The outstanding features are the severity of the lesions and their diffuse character. Three clinical types are described: (i) acute severe gingivitis, (ii) mild recurrent gingivitis and (iii) angina.

Syphilis and diphtheria are discussed in the differential diagnosis. Stress is laid on the use of penicillin locally and generally. Its use may obscure the early lesions of syphilis and diphtheria.

Treatment by penicillin is effective. It should supersede other methods of therapy, especially under military conditions. Methods of prophylaxis are discussed.

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THE NERVOUS CHILD.[1]

By D. G. HAMILTON,
Sydney.

THE better to appreciate what I have to say tonight, I want you to try to see things from the child's point of view. Try to understand what goes on in the minds of the little people as they gradually grow up—as they savour new joys and feel new powers and are perplexed by new problems. It is important that from infancy the child's independence should be encouraged by his being given freedom to do things himself, to develop new powers as they appear. It is equally important that his difficulties and unpleasant experiences should be introduced to him gradually. A happy child life is one of adventure and adaptation—adventure in discovering and indulging new powers and pleasures, adaptation in becoming used to the things that are strange and foreign to him—strange foods, strange disciplines, strange irritations.

Ætiological Factors.

The child is constantly meeting influences that shape his character and his conduct. By the nervous child we mean the child who reacts so excessively to these influences that his behaviour becomes a problem. Sometimes the fault lies in the over-sensitive nature that has been born in him, but too often the fault is in his surroundings. Again and again you will find me blaming the parents, for they it is who most often create the tension in the environment to which the child reacts badly. And parents do this because of a lack of understanding of the thought processes of the child and a lack of patience and imagination in adapting their control to his needs. Almost all children resent compulsion that they do not understand, and their response is resistance, a stubborn resistance that gives way only when the child is reduced to tears. How often we hear of "Johnny, who has a will of his own", and how often a behaviour problem is created by the ill-advised parent, who is determined that the child shall do this or do that, but who understands no greater subtlety than the stern voice or the strong hand—not that the stern voice and strong hand have not sometimes a place. Many children, too, like attention, to be the centre of attraction, and the discovery that difficult behaviour brings attention causes them to continue in their troublesome ways. The young child, too, is very suggestible and distractable—qualities that the wise parent can use to overcome many little problems, but qualities that cause the child to accept as part of his life the fears and anxieties that the parents show. Instead of being full of the fun of fresh achievement, life becomes clouded by fear of things that are new or unpleasant, and the child becomes timid, frustrated and dependent.

Difficulties at school, disagreements with teachers or playmates, variable methods of discipline and behaviour among the adults of the household—parents, grandparents and maids—physical defects such as a limp or a squint, or even the boredom that disappears when kindergarten attendance commences, may all be important causes of difficult behaviour. Simple fatigue, whether caused by lack of rest or by ill health, should be kept in mind in connexion with any "problem child". How often the young child's behaviour improves immensely when the mother in her wisdom lies down to have an afternoon sleep and sees that the child imitates her, or gives him an occasional day at home from school to rest. Anything that interferes with adequate rest for the nervous child should be remedied. Threadworms or the heavy evening meal that interferes with restful sleep should be eliminated. And anything that interferes with the adequate rest of the nervous mother should be eliminated too. A mother who is overworked, overtired and over-anxious cannot have the placid forbearance that her nervous child needs. He was a wise doctor who said it was better to give bromides to the parents than to the children.

Asthma.

I am to deal particularly with those illnesses of the nervous child that have in part a physical basis or a physical expression. The first of these is asthma and with it vasomotor rhinitis.

More doctors seem to have an incomplete view of childhood asthma than of any other disease I know. There are those who believe that the cause lies in upper respiratory infection. There are those who hold that the disease is nearly always psychological. Many feel that if they have had skin tests performed and found the child sensitive to this food and that pollen they have exhausted their inquiries. All are partly right, but only partly so. Surely the truth about asthma is this, that the child has been born with or has developed a respiratory system that responds in an abnormal fashion to a wide variety of irritants. The response is an attack of asthma; the irritants may be emotional or physical or allergic or infective. One or all may be important in any particular patient. Certainly all must be thought of and looked for. The physical factors are such things as climatic changes, the onset of dull wet weather, or dust and fumes to which no specific allergic sensitivity can be demonstrated. The allergic factors should be sought by correlating the results of skin tests and clinical inquiry. If both indicate an offending substance, it should be avoided by the patient if possible, and if not, desensitization can be attempted—a process that is often disappointing. Infection, particularly in the upper part of the respiratory tract, should be sought and treated conservatively. Avoidance of contact with fresh infection, good food and hygiene, contrast baths and sensible clothes, chemotherapy, inhalants, antral lavage and vaccines may all have a place. But do not think that a moist, swollen, mucous membrane in nose and antrum means infection, or that the blocked and watering nose that precedes the attack of asthma means that the attack is caused because the child caught cold. More often both are simply part of the response that this abnormal respiratory system is making to some irritation. The emotional factor may be very varied. The child is often alert and intelligent, ambitious and overactive, sometimes afraid to do the things he wants to do, too often pampered

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on September 30, 1948.

or frustrated by an over-fussy, over-anxious mother. This excessive care may make the child either resentful and rebellious or unduly acquiescent and sensitive. The asthma attack may be produced by a single severe emotional experience—an exciting party, a fright, a temper tantrum, a disappointment at school—or by the gradual emotional exhaustion from the continued little frictions felt by a mind unsatisfactorily adjusted to its environment or fatigued by inadequate rest.

All these factors, physical and emotional, should be discussed with the parents—with both parents, their anxiety relieved, the fears and fetters removed from the child's development, and the tension removed from the home or school. Adequate rest must be achieved, often by the use of sedatives.

Asthmatic children, properly managed, tend to grow out of their disease. In fact, they learn to adapt themselves to these many irritations, physical and mental, that upset their childhood. They learn to take the hurdles of life smoothly.

The Digestive System.

The next group of complaints I want to discuss are those of the digestive system. Loss of appetite is a remarkably common complaint of childhood. It is essential, of course, for the physician to be sure it has not a physical basis. In the infant pink disease and teething cause it. Later on chronic intestinal indigestion, often due to intolerance of some elements of an ill-balanced diet, cœliac disease, infections acute and chronic, and perhaps vitamin *B* deficiency must be excluded. And it must be remembered, too, that between the ages of one and five years, almost every child goes off its food at some stage, for during this period growth is relatively slow and the need for food therefore less. Such common faults as eating sweets and biscuits between meals or drinking large quantities of milk must not be forgotten. Obvious emotional disturbances in the child's life should be remedied. But usually functional anorexia arises from the forcing of food that is either disliked or not needed. This resentment of food is likely to occur at any time during the first five years. And so the introduction of solids to the baby should be started early and done gradually, and if a food is disliked it should be omitted for a while. The physiological decline in appetite of the toddler should be respected. The child who is ill should not be forced to eat. Compulsion is of no use when a child comes to the table too tired or too excited to eat. It is much more successful to distract his attention from food by casually talking about something you know will interest him. While his face is glowing with interest you feed him a few mouthfuls, and soon, his resentment of food forgotten, he is eating willingly. But to keep attention riveted on food, and to try to force it between the clenched teeth of the struggling child, is creating a habit that will have the whole family distraught before it passes. A food that is frankly disliked should not be forced on a child. After all, banana is as good as pumpkin, and apple as spinach. The child's tastes will vary from time to time, and if for a while he wants nothing but sandwiches, why not let him have them? Between the bread he will get all manner of excellent foods.

Nervous vomiting may arise in several ways. It may be the culmination of forced feeding of the resistant child. It may be the sequel to any exciting, frightening or unpleasant experience in a timid, nervous child. I know a nervous little boy who unfortunately has a squint, and he often vomits after going to see the ophthalmologist. Vomiting because of worry about school by the child who has difficulty with lessons, teachers or playmates or by the over-zealous child who is too keen to do well, is common enough. Treatment depends on finding the cause of the nervous strain and removing it. A nervous factor often plays a part in the vomiting of infancy. An early error in management, such as underfeeding, feeding too rapidly, exaggerated or rough handling, or the daily visiting to show baby to relatives and friends that the foolish, proud young mother is so prone to do, makes the baby distressed and tired. Vomiting results, and soon we have a restless, nervous, crying baby with spasm at either the cardiac or pyloric end of the stomach. Vomiting may be projectile, and the exclusion of pyloric stenosis may require great care. Correction of the error in feeding and handling and the use of a sedative such as chloral or phenobarbital may be sufficient treatment. "Eumydrin" or atropine and occasionally gastric lavage may be of great use, but sometimes the tendency to vomit persists throughout the milk-feeding period.

Cyclic vomiting occurs in sensitive, nervous children. Its cause is not clearly understood, but attacks do tend to occur as the result of nervous exhaustion. It is the same type of child who complains of frequently recurring colicky pains felt in the centre of the abdomen. They result, I believe, from excessive or irregular peristalsis, a restless over-sensitive bowel in an over-sensitive child. If elimination of tension from the mind, of imbalance from the diet and of threadworms from the bowel and the exhibition of a simple mixture of a sedative with rhubarb and soda do not effect a great improvement, then a barium meal X-ray examination should be carried out. It will help to exclude such troubles as fixation or partial obstruction of appendix or bowel or incomplete rotation of bowel. If the pain remains severe, a more complete investigation is called for.

Constipation in the child rarely results from organic abnormalities of the bowel; it results much more often from inadequate fluid or fruit in the diet, or from the resistance aroused in the child by the mother who sits him on his chamber pot after a meal, sometimes after three meals a day, and tells him not to dare to get off till he has done something. The unhappy face, the twisting and squirming on the hated pot and the steadily increasing constipation make a tragic picture. Let him go and play! He will come running quickly enough to have his buttons undone when Nature calls.

Urinary Disorders.

Two common urinary disorders that are partly nervous in origin are diurnal frequency of micturition and bed-wetting. The former is common enough in little girls, the complaint being of frequency or urgency without pain. The subjects are usually alert, nervous little people. Sometimes too great emphasis on bladder training or other environmental tension is present. These should be remedied, a mixture of belladonna and a sedative should be given, and no more attention should be drawn to micturition. It is important to exclude organic causes of frequency of micturition. Urinary examination to exclude pyuria, bacilluria or glycosuria is essential. In persistent cases cystoscopy and urethroscopy are indicated to exclude chronic urethritis or a narrow urethra—conditions that respond better to dilatation than to drugs and optimism. The external genitals should always be examined; it is so easy to find labial adhesions or vulvitis just by looking.

Nocturnal enuresis is a difficult problem. The same organic conditions must be excluded, with the important addition of threadworms in girls. Children with enuresis are not necessarily nervous. They may indeed be very placid, but for the most part they are ashamed of their failing and sensitive about it. Often it is found that in the second year of life the child gains a considerable measure of nocturnal control, and the parent, anxious to train him, draws undue attention to the lapses that do still occur. The child becomes conscious of the wrong of bed-wetting, and gradually he becomes ashamed of any failure and loses confidence in his ability to maintain control. Pleading, punishing and praising simply focus the child's attention on his fault and make it worse. The matter must be ignored and an attitude of casual optimism be maintained. "The child must learn to see that the thing is not so desperately tragic. He should be told that the trouble always gets well, and that it only goes on now because he is worried about it and keeps thinking about it." The intake of fluids should be restricted in the late afternoon, but not with emphasis.

Of drugs, the most valuable is a combination of belladonna with a sedative. If this does not help, it is unlikely that ephedrine or thyreoid will.

Habit Spasm.

Tics and habit spasms can arise from any of the emotional stresses we have discussed. They must be distinguished from chorea. In general, tics are repetitions of a single or several movements and chorea is irregular and uncontrollable. Sometimes the distinction is not easy, for the movement of chorea is occasionally strikingly regular and localized, and habit spasm may include several movements that need not follow one another in ordered sequence. The nervous imbalance of habit spasm helps in its recognition. This must be remedied, the movement ignored and in most cases sedatives given.

Neurosis.

The neuroses of childhood may present many symptoms.

A boy, aged nine years, complained of headache, limb pains, abdominal pain, and tiredness and lack of interest. I was the eighth doctor tried. His illness had been called rheumatism, anæmia, antritis and appendicitis. A prominent surgeon had operated. The boy moped around while his anxious, dominating mother sought new diagnoses. Father peered cautiously from his haven among the orchids. Then this woman read in a popular magazine that folic acid cured people of tiredness and lack of interest. Though blood counts made by two separate doctors had given normal findings, the boy must have folic acid. I insisted that his trouble was entirely mental, and suggested he should be sent to boarding school. "He would never stand it", his mother said. I replied that as long as he was with her and she was convinced that he was ill, he would remain so. I suggested she take him to any doctor she liked, and if a cure could not be effected in three months he should go to boarding school. "All right", she agreed, "but if I find anything wrong with him I will come down on you like a ton of bricks." The *dénouement* was unexpected. The poor mother developed acute pancreatitis and died. Since then the boy has been well.

THE NERVOUS CHILD.[1]

By W. S. DAWSON,
Sydney.

WHAT is meant by a "nervous" child? This subject was discussed just fifteen years ago in this hall, when the late A. W. Campbell[(1)] presented a paper in which he said that the term "nervous" was applied by the average parent to the active-minded, easily excited, quick child as contrasted with the phlegmatic child. Dr. Campbell went on to express the opinion that there was no justification for regarding such a child as abnormal in the absence of other signs of psychoneurosis, and pointed out that highly strung individuals frequently possessed strong strings. Quite properly the careful parent will consult his medical adviser as to the significance of general excitability or of some nervous habit in his offspring, and it will be the task of the doctor to consider the background upon which the symptom or sign is presented. After all, it is not their mere presence, but the circumstances of the occurrence and recurrence of these nervous manifestations which may be significant. Further, while it is true that the term "nervous" is most often used in the sense indicated by Dr. Campbell, it is also a sort of euphemism or understatement for badness or madness, with the justification that these grosser deviations from correct behaviour are no longer regarded as the product of original sin or even hereditary with the implication that nothing can be done about them, but as worthy of investigation and treatment according to the principles which are applied to the excitable and highly strung child.

Following the procedure adopted on the previous occasion, the present speaker proposes to deal with the child (then termed "psychopathic") who, in spite of worming, immunization, tonsillectomy and vitaminization, fails to behave as his parents or society demand—the undesirable behaviour appearing at any level or combination of functional levels, reflex, instinctive, habitual or volitional. And in a world which has become vastly more complex since the dawn of the present century, one may add that instead of the child's being born either "a little Liberal or else a little Conservative", he may early inherit or acquire various shades of pink or red in his social ideology.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on September 30, 1948.

Emotional and Social Development.

The proper training or education of the child must depend on an adequate appreciation of his capacity, and especially, since he is viewed through adult eyes, of his limitations. What is the philosophy of child guidance including the correction of deviation from required channels of behaviour? At birth the infant is a reflex creature, mindless, responding by cries to hunger, cold and lack of physical support. The movements are predominantly appetitive, reaching first towards the breast, and later towards other parts of the mother or nurse. Aversive movements reject the breast when the infant is satisfied. Here lie the foundations of interpersonal relationships which seem likely to determine the pattern of social behaviour for the rest of life. The infant derives much more than protein, fat *et cetera* from the maternal breast. Some observations have shown that, compared with a control series of patients in general medical wards, a high proportion of psychoneurotics have been bottle-fed infants. We can hardly assume that the bottle-fed baby must inevitably grow to be a rejected, frustrated adult, unless the mother in her general handling of the child has been impatient, resentful or indifferent. Investigation of feeding difficulties in infants will accordingly include the mother's attitude. The development of coordination and motility is of less importance in the emotional life of the infant, with reasonable encouragement and scope. The worst things that a child can be told for the first few years is to keep still and be quiet. It is on record that in the Wesley family the children, even as infants, were not allowed to cry. Too often a child's life is a series of prohibitions rather than of sympathetically guided conduct. What the infant needs in addition to a certain standard of physical comfort are above all security and affection, the basic provisions of the Atlantic Charter of childhood without which emotions are likely to be unstable and character warped or stunted. The child brought up in an institution may have had his physical needs satisfied, and may also have felt secure, perhaps too much so, but frequently is emotionally starved, having been denied the affective ties of the natural child-parent relationship. A sense of inferiority, undue dependence on others, jealousy, and hysterical episodes designed to attract attention are not uncommon amongst such children. There must, of course, be some discipline, administered through a reasonable, but not stereotyped or repressive, regimen of feeding, elimination, play and rest. A misinterpretation of the Freudian teaching as to the evil effects of repression has led some parents and even educationists to introduce a system, or rather lack of system, of allowing the child complete liberty of action. The results have, I understand, generally been disastrous. The cry for freedom at all ages, both individual and social, is seldom accompanied by a sense of obligation. The child learns by imitation, behaving, as Wordsworth has it in his "Ode on the Intimations of Immortality from Recollections of Early Childhood",

> As if his whole vocation
> Were endless imitation.

It would be well if parents, especially mothers, could bear in mind what profound and lasting impressions are made on the mind of the child by intonation of speech, facial expression and gesture.

The Pre-School Period (Two to Five Years).

With the growing sense of individuality, together with awareness of other persons of special importance to himself, the child's social development proceeds more rapidly, the child-parent relationship continuing to be of supreme importance. The keener, more definite discrimination between self and others, with the inevitable conflict of wills, is responsible for the quite normal phase of obstinacy

and negativism, with outbursts of temper and screaming during the ages of two and three years. The first really important step in socialization is taken with the acquisition of good toilet habits, and it is the required behaviour in regard to feeding and elimination which is specially liable to provoke resistance on the part of the child. The handling of these situations is important, since it will in no small way determine the child's later attitude towards authority. It can readily be understood that struggles over these elementary needs with the consequent visceral and emotional upsets may leave behind disturbing memory traces and reaction patterns. The Freudians have suggested that the manic-depressive and compulsion states arise as reactions respectively to oral deprivations and to over-strict discipline in toilet training. The child's resentment against control and restriction of his will finds an outlet in destructiveness and cruelty, which may assume troublesome proportions during this period. Suitable outlets must be provided, including things of no value which can be pulled to pieces. The child's aggressive impulses may thus be satisfied with the least inconvenience, and at the same time curiosity is encouraged. Wise parents prefer to rent rather than own a home until their young families have grown out of this stage. The child's curiosity regarding his own body may lead to an undesirable degree of preoccupation with the external genitalia, and to vague speculations as to sex differences. The happy, contented child is less likely to seek sensory gratification in an undesirable manner. Assistance by the parent towards sublimation with the least display of emotion, and the satisfaction of natural curiosity by simple information, will go far towards keeping sex in its proper place in the child's mind. Undue egotism and autoerotism can usually be checked and sublimated by group play, and in these days of small families and confined dwelling spaces the fortunate child may have access to supervised playgrounds and to kindergartens, where he can learn to give and take, can construct, scribble and daub, can dramatize his personal problems, and improve his muscular power and coordination and his temper.

The School Period, up to Puberty.

The child's increasing physical strength and finer coordination of sensation and motility give him greater confidence and lead to more independence in his attitude towards adults. This independence may be expressed as indifference or even hostility towards adults. At the same time there is an increasing interest in school mates, the peak of the "gang" age occurring at about eleven years. Whether group activities are wholesome or undesirable will depend on the influence and resources of home, school and neighbourhood. As the integration of cortical mechanisms proceeds, difficult situations are less likely to give rise to thalamic release in the shape of tempers and tears. But a sense of frustration may still find expression in disorderly behaviour including delinquency (to be considered later), or in ways which come more and more to resemble psychoneurosis in the adult. The child who is mentally retarded by one or two years is more likely than the more obviously mentally deficient child to be the victim of undue pressure by a teacher anxious about examination successes or by an ambitious parent, and a psychoneurotic development offers a means of escape. As they grow older the "nervous" children tend to crystallize out into the anxiety psychoneurotics with their visceral-emotional tensions and hypochondriacal preoccupations, or the obsessionals with their queasy consciences, or the imitative hysterics.

Psychoses in Childhood.

A child may exhibit extraordinary behaviour in delirium of toxic or infective origin, and in hysterical episodes; but a sustained personality change of a schizophrenic or manic-depressive type is exceedingly rare before puberty. It is true that in the histories of our adult psychotics we often point back to certain features in the patient's childhood, which because of their frequency and nature are to be regarded as significant. Thus we learn that the schizophrenic in childhood has been (i) dreamy, lacking in drive and ambition and emotionally cool or indifferent, or (ii) serious-minded and with a precocious interest in abstract studies, or (iii) seclusive, sensitive, tender-minded, avoiding the rough and tumble of the average child, or (iv) irritable, obstinate, egocentric, aggressive and rebellious, or (v) a constantly complaining hypochondriac, or (vi) an emotionally, but not necessarily intellectually, immature individual, "always a child for his years". Parents often tell us that our schizophrenic patient has been from his earliest years different from his brothers and sisters, and on further inquiry we learn that he has been of a quiet, sensitive and seclusive type. It is much easier to look back than to forecast the psychiatric future of children who give their parents concern because of nervousness and odd behaviour. We may regard many of these children as predisposed to mental breakdown, but it would seem that an infective illness, or some special emotional stress occasioned by failure to achieve some ambition or by bereavement, or changed mode of life such as that occasioned by military service, frequently acts as the agent which breaks down higher control and reduces the mind to lower levels of functioning. A few cases have been reported with the titles of *dementia precocissima* and *dementia infantilis*, in which that gradual deterioration of affect and withdrawal from reality more frequently seen in the second and third decades became apparent in early childhood. The position is the same with the manic-depressive psychosis, in which the history of a hypochondriacal or morbidly anxious background in childhood is often forthcoming.

In a series of 100 adults who came under notice with depressive reactions, 23 had a history of a variety of "nervous" manifestations in childhood, fairly persistent and intense (Dawson[3]). But a cyclothymic tendency does not emerge until nearer adulthood. Gillespie[4] pointed out that both motility and mood are naturally labile in childhood, so that transient depressions and excitements are not necessarily to be regarded as early manifestations of a manic-depressive diathesis.

Some years ago I saw in the Newcastle institution a boy of eleven years, of idiot grade of mentality, who had from at least four or five years of age been subject to phases of noisiness, restlessness and euphoria alternating with mutism, apathy or depression and reduction in activity.

From what I have said, it would appear that for lack of more definite indications the prevention of schizophrenic and manic-depressive psychosis or the reduction of predisposition to their occurrence must be effected through the correction, by any means at our disposal, physical or psychological, of nervous instability whenever it appears.

Cerebral Trauma and Infective Illness.

While cerebral trauma is often suggested by the parents as a cause of retarded intellectual development or of emotional instability, it is seldom that the evidence will stand criticism. In fact, it is surprising how rarely there is evidence of permanent cerebral damage in children who have sustained severe head injury. On the other hand, encephalitis, sometimes regarded as meningitis, or a history of a febrile illness or of one of the exanthemata, occasionally precedes profound changes in personality involving release of thalamostriate types of conduct, irritability, impulsive behaviour and deterioration of the moral sense in children who have previously been of average stability. I have not heard of a "bad" child who has become a reformed character after such an illness. The change for the worse usually defies correction by any known means, except perhaps by frontal leucotomy; but improvement has been observed in some cases over a period of years. In some instances after an injury or illness not necessarily involving the cerebrum a child becomes a family problem by reason of persistent invalidism, irritability and "exactingness". The possibility, if not the certainty, of a psychological reaction should not be overlooked. The child, having discovered certain advantages in being an invalid, clings to the means of escape from something unpleasant and of attracting the sympathy and attention of the family.

Epilepsy in Childhood.

The lability of the child's nervous system is shown by the frequency with which convulsions occur at the onset

of febrile illnesses such as the exanthemata. But in such instances the child is not necessarily to be regarded as epileptic. Certain spasmodic conditions in infancy, such as the rhythmic "salaam" movements of head and shoulders occurring in attacks, are usually part of a cerebral degeneration. Breath-holding spells with cyanosis, on the other hand, while bearing some resemblance to *petit mal* attacks, are affective in origin, and while calling for mild sedation in some instances should be handled as an emotional disturbance. When *petit mal* attacks constitute the first manifestations of epilepsy (or recrudescence in the child who has had convulsions in infancy, but has been free for some years), it is likely that he will for a time be regarded merely as inattentive by teacher or parent. The electroencephalogram is now available as an adjunct to the history and the clinical examinations. As in certain cases of pathological irritability in adults, some children presenting outbursts of aggressiveness and destructiveness are found to have an abnormal encephalogram with slow waves of a frequency of about six per second and occasional "epileptic" spikes. Behaviour disorders in this class may respond to "Benzedrine" (or "Dexedrine") or to a combination of these drugs with "Dilantin".

Delinquency.

The subject of delinquency may fairly be included in a consideration of the nervous child for at least two reasons. In the first place the delinquent child, far from being a brazen, feelingless little rebel, is a distressed, unhappy child, who has often been a "nervous" child in the sense that the term has been used earlier in the discussion, before antisocial conduct assumed serious proportions. Secondly, as William Healy demonstrated in Chicago in 1909, by recognition of the nervous or psychobiological or psychosomatic and environmental factors behind delinquency, the treatment of the nervous and of the delinquent child is carried out on similar lines. The present-day child guidance clinic with its team consisting of psychiatrist, social worker and educational psychologist is the direct successor of the Juvenile Psychopathic Institute founded to study the causes of juvenile delinquency in Chicago. And not the least important of the aims of private and public organizations for child guidance is the correction of trends in young children which, if allowed to continue, seem likely to end in delinquency. Now, since delinquency is an official matter, involving a charge and a hearing before a special court of law, the Children's Court, the medical and psychiatric investigations are usually carried out in a State clinic, and when treatment in an institution is ordered by the court, the child is committed to one of the State homes for delinquents. But since the general practitioner in this most important branch of social medicine is concerned more with prevention, certain factors in delinquency merit consideration at this meeting.

The moral sense—the recognition of the difference between right and wrong—becomes apparent in the average child early in the second year, when he begins to check or inhibit actions as required by mother or nurse. From this time, too, there begins the endless struggle between self and society, in which a compromise which is truly satisfactory can be attained only in so far as the individual acts according to high ethical and altruistic principles. The moral sense cannot be developed through fear, only through the influence of a high sentiment of regard for others. Hence those situations which disturb the normal bond of affection between mother and child will tend to inhibit the development of a moral sense in the latter.

In any consideration in greater detail of these factors in delinquency it is usual to refer to them in the following manner.

Inherent and Constitutional Factors.

Nervous instability may be apparent from early infancy, sometimes also in association with inferior physique. The family history may raise the suspicion that the nervous instability is at least in part hereditary, especially when the psychological environment is satisfactory. It is possible that delinquents have inherited certain impulses or instincts in an abnormally intense form, such as those which dispose to acquisitiveness or sexual satisfaction. Physical handicaps such as inferior physique, defective special senses and bodily peculiarities, and mental disabilities such as subnormal intelligence, in so far as the child develops a feeling of inferiority from his inability to compete with his fellows on equal terms, will prompt him to try to get his own back in forbidden ways. It has been found that wandering, cruelty and destructiveness are the misdemeanours of the lower intelligences, while stealing and sex offences are committed by children whose intelligence range is upward from only a little below the average.

Environmental (Economic and Social) Factors.

Poverty and bad housing conditions may play a part, in so far as they create an atmosphere of frustration and emotional tension within the home, which in turn leads to neglect of the child from an emotional standpoint, and to defective or inconsistent discipline. Facilities for satisfactory recreation may be lacking within the home and in the neighbourhood, and at the "gang" age (from eight to eleven or twelve years) the child may meet undesirable companions. It is surprising how ignorant and indifferent parents may be about the interests and activities of their children. Many a harassed mother seems to be only too thankful when her children are out of sight and hearing. Various other economic and social factors, such as uncongenial employment and misuse of freedom and of earnings, may be significant after the child has left school at an age which does not come within the range of this review. But even here it would seem that in many instances long-standing emotional tension has preceded these situations. Healy and Bronner[4] (quoted by Bowley[5]) suggest that delinquency is (i) evasive—an attempt to escape from inner emotional stresses, an act of desperation as it were by the distressed child, or (ii) compensatory for some inferiority, or (iii) revengeful, primarily against the parents, or (iv) prompted by a sense of guilt and a feeling of need for self-punishment. This leads us to what is generally considered as the most important situation.

Disturbed emotional relationships may exist within the home. As Bowley[5] points out, "the child who lacks affection, the child who feels deprived, rejected, unwanted or insecure, and frequently the illegitimate child, is the child who nourishes a grievance and feels antagonistic firstly towards his parents, and later towards society". Discipline, of course, or the lack of it, plays an important part. Absence of discipline is less common than inconsistency or division of authority between the parents or between the parents and other relatives living in the same house, together with prejudice and favouritism. The disruption of normal parental relationships by divorce, separation, death, the introduction of a step-parent, adoption and illegitimacy, all disturb the child's sense of security to a serious degree. Evacuation involving separation from the parents during the recent war appeared to cause more emotional disturbance in children in England than experience of air raids, and the great rise in delinquency recorded both in England and in Australia during the war years may be ascribed largely to reduction in parental control, the father's being away on service and sometimes also the mother out at work. We may speculate about the extent of an aftermath of these difficult years of nervous instability and irresponsibility amongst young people. We may also wonder if after all war conditions were no more than precipitating factors in children whose family life even before the war lacked solid foundations. And where moral issues are at stake, and in an age when the cry for liberty and freedom so rarely is accompanied by any sense of obligation to others, we cannot overlook the fact that former values of faith and reverence, which doubtless had a stabilizing if sometimes a repressive influence, have largely declined, leaving, we may hope only temporarily, bewilderment and a spiritual void.

Conclusion.

In the treatment of the nervous child, it is necessary on the one hand to pay attention to his stage of mental development particularly from the emotional aspect and

on the other to the environmental influences which are moulding his character. Here lie the foundations of social medicine, since both physically and mentally the child may be made or marred during his early impressionable and formative years. The recognition of social influences has found expression in the multiplication of such organizations as pre-school play and child study centres and supervised playgrounds, which function from a mental hygiene standpoint mainly as preventive, but to some extent also as therapeutic agencies.

From a more scientific or critical angle some reference might have been made to heredity. But we have to deal with the child as he is born and do our best with him whatever his hereditary loading, remembering that parental example is at least as potent as innate instability. Treatment, in which the family doctor has the advantage of an onlooker who sees more of the game than the players in the family game, consists in guidance, stimulation, restraint as occasion demands, with constant watch on the family situation. Advice to the parents is often a psychological operation of the greatest delicacy, especially with a grandmother who has reared her dozen or so in the offing. Any prescription should contain large doses of faith, hope and charity—faith in the child, hope for his future and charity towards human frailty. The old aphorism, "never despair of a sick child", may justly be applied to the "nervous" child.

References.

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(2) W. S. Dawson: "Study of the Depressive Reaction", Mott Memorial Volume, London, 1929.
(3) R. D. Gillespie: "Survey of Child Psychiatry", edited by R. G. Gordon, 1939.
(4) W. Healy and A. Bronner: "A New Light on Delinquency", 1936.
(5) A. H. Bowley: "The Natural Development of the Child", 1943.
(6) A. H. Bowley: "Problems of Family Life", 1946.

Reviews.

VENEREAL DISEASE.

THE second edition of "The Venereal Diseases" by James Marshall has appeared.[1] The first was published in 1944. Much has happened in the years between editions, and fresh material has been added and parts have been rewritten and expanded in this edition to bring it up to date. A special introduction of three and a half pages deals in a general way with the preparation and administration of penicillin and added chapters in the parts concerned with gonorrhœa and syphilis give details of treatment methods with this drug. There appears to be no reason for divorcing reference to penicillin from the various sections dealing with the treatment of gonococcal infections. In the preface to this edition the author states that "penicillin is not yet universally available, so I have thought it best to add this information rather than to rewrite the existing chapters on treatment". It would have been better to rewrite the chapters.

Gonorrhœa is adequately dealt with for infection in both male and female. After a brief description of the anatomy of the genital organs, consideration is given to methods of diagnosis and treatment of acute uncomplicated gonorrhœa and of most of the complications which may arise from gonococcal infection. Treatment by sulphonamides is discussed in detail, with special attention to toxic manifestations and the means of preventing and combating them. In the diagnosis of gonorrhœa in the female the importance of cultural investigation for the presence of gonococci is mentioned and in tests of cure it is suggested that this method should be employed on three successive months after the cessation of the menstrual period. This is almost universal procedure at clinics. A provocative injection of 500 million organisms of a polyvalent gonococcal vaccine is also recommended by the author, forty-eight hours before the third test is made. Mention is made of rectal examination in the tests of cure and such examinations are important enough to be required as routine procedure.

Serological tests for syphilis are recommended three and six months after treatment for gonorrhœa.

At the close of the special chapter dealing with penicillin treatment of gonococcal infections, mention is made of the masking of syphilis by penicillin, and the author states that "in no case that I have seen personally has the appearance of surface lesions of syphilis been delayed by penicillin treatment of gonorrhœa beyond three months". He claims that in his experience the incubation period of syphilis has usually been lengthened to an average of fifty days.

The part dealing with syphilis is well illustrated and has eight good colour plates as well as seventy-three other excellent pictures. These have been well chosen and are very useful in showing the various conditions described in the book. Serology is dealt with briefly, but the information is sufficient to allow the reader to understand what happens. We do not agree with the statement that "in early syphilis the Wassermann reaction often becomes positive before the Kahn test, but occasionally the reverse occurs". As a rule we find that the Kahn reaction shows first and usually fades out last.

The description and illustrations of chancres and of the secondary stage of syphilis are good. Late syphilitic manifestations receive varying degrees of consideration and are, on the whole, adequately covered. Here again the illustrations are well chosen.

Almost one-third of the space allotted to syphilis is given to consideration of the methods, and possible complications, of treatment. A wide range of therapy is well and clearly presented. The total dose of three million units of penicillin recommended for primary seronegative syphilis seems small, especially when the author, in the introduction to this edition, advised in regard to penicillin "that over treatment should be the order of the day". He recommends double that total dose in the retreatment of failures and in late syphilis.

Other veneral diseases, such as chancroid, *lymphogranuloma venereum* and *granuloma inguinale*, are adequately dealt with, as well as some conditions considered non-venereal, though usually the result of venery.

The final part of the book deals with technique and contains a variety of information concerning treatment and examination procedure and methods of prophylaxis for both male and female.

An appendix deals briefly with the sociology of venereal diseases, giving consideration to legislation, contact tracing, defaulters and marriage.

The book is a helpful guide in the diagnosis and treatment of venereal disease and should be of value to practitioners and students, for whose use it has been designed.

[1] "The Venereal Diseases: A Manual for Practitioners and Students", by James Marshall, M.D., B.S., M.R.C.S., L.R.C.P.; Second Edition; 1948. London: Macmillan and Company, Limited. 8½" x 5", pp. 386, with illustrations, some coloured. Price: 21s.

AN ATLAS OF ANATOMY.

J. C. BOILEAU GRANT has produced a second edition of his atlas of anatomy.[1] There has been no change in the plan of the book. It still attempts to depict the structures of the human body, region by region, in much the same order as the student displays them by dissection. In this edition there are more than 200 new illustrations; 16 of the old illustrations have been enlarged, and colour has been used freely. Apart from new illustrations involving various regions, new features include a representation of the most common variations that confront the student in the dissecting room, diagrams of the epiphyses of the bones of the limbs, and schemes of the distribution of the cranial nerves and the motor nerves of the limbs.

In general this is a good atlas, and has been found useful by students. Some criticisms, however, are justified. We are doubtful of the wisdom of pulling structures into an abnormal position (for example, Figure 8). This tends to confuse the student. The dermatomes throughout the book need to be made clearer. We think that the diagrams illustrating the inguinal canal and those on the pelvic musculature are poor, whilst such a simple arrangement of the vagi at the œsophageal opening as that shown would be a joy to the surgeon. The variations are of necessity incomplete and may fix in the student's mind a few types only. The pathological specimen (number 36) would be better omitted. The striking feature in the whole book is the inadequate space given to the brain.

Despite these criticisms we can recommend the book as a reliable atlas of anatomy; it is well produced, and the index is adequate.

[1] "An Atlas of Anatomy", by J. C. Boileau Grant, M.C., M.B., Ch.B., F.R.C.S. (Edinburgh); Second Edition; 1947. London: Baillière, Tindall and Cox. 11" x 8½", pp. 522, with 591 illustrations. Price: 55s. net.

The Medical Journal of Australia

SATURDAY, JANUARY 8, 1949.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE RECRUITMENT AND TRAINING OF NURSES: A MINORITY REPORT FROM ENGLAND.

In November, 1947, a good deal of space was devoted in these columns to the discussion of a report by a "Working Party" on the recruitment and training of nurses. The report had been prepared for the Ministry of Health of Great Britain and the Department of Health for Scotland. The "working party" consisted of five persons, of whom Sir Robert Wood, Principal of the University College, Southampton, was chairman. The report was signed by only four of the five members; Dr. John Cohen, of the Cabinet Office (now of the University of Leeds), did not agree with some of the conclusions and stated that he would issue a minority report. It will be remembered that in the majority report the problem of staffing the nursing services was regarded as being partly one of preventive medicine—the problem, it was stated, could be attacked quite as much by reducing the number of patients as by increasing the number of nurses. The committee also reported the results of a "job analysis" of nursing training. The findings of this analysis led the committee to a scheme of training which would provide for all nurses a course of basic training lasting two years. The report of 1947 contained a "note" by Dr. Cohen. In this he stated that he could not sign the report because the recommendations did not take sufficient account either of the relation between the planning of nursing and other health services and the planning of the country's manpower resources as a whole, or of the extent to which methods employed in psychological research could provide a scientific basis for determining nursing and medical staff ratios or determining the length of training periods for nurses. His minority report has after a long period of months been published.[1]

The author holds that if a nursing service is to be planned, the correct size and composition of the nursing force must be known—"without this knowledge it is impossible to lay down the proper form, content, or length of nurse training, or shape a sound policy on most other aspects of organised nursing life". But this is not all—it is something like the house that Jack built. We cannot, he declares, assess our true nursing needs until we have a comprehensively planned health service for which the number of hospitals, sanatoria, beds, doctors and so forth required have been correctly determined. And a planned health service in turn presupposes a planned economy in which a correct proportion of our national resources is devoted to health. Dr. Cohen has a good deal to say about the ineffectiveness of opinion as a basis for health planning and he recalls the prediction of Graham Wallas that some day the word "opinion" might become the recognized name of the most dangerous vice. He insists that the basic problems of nursing reconstruction cannot be solved without research and that a radical change in the current attitude to research in the social sciences is essential. Of the reasons why research of this kind has not been undertaken two are discussed. One is the intellectual bias in social administration which encourages the notion that pure thought is the chief source of social wisdom. The other is the tendency to resist new ideas. Two types of research organization are, in his opinion, required. One would be concerned with the study of the common and many-sided problems which affect not only nursing but other aspects of the social and industrial life of the community. The other type of organization would be located in the health departments and be concerned with problems specific to the health field. One other point that must be mentioned before an attempt is made to discuss Dr. Cohen's ideas is his statement that it is impossible to determine the content of nurse training before it is decided what is the proper function of a qualified nurse. In Dr. Cohen's opinion a nurse's function is to reduce the incidence and duration of sickness. This is a practical statement. Trained medical people will at once declare that nursing is concerned with much more than the immediate care of the sick person. Nursing has progressed just as medicine has progressed and we now have what may be described as preventive nursing as a partner to curative nursing. We have only to recall the work of nurses attached to government health departments and industrial undertakings to realize the altered scope of the nursing of the present day.

At first sight Dr. Cohen's arguments seem convincing, but it is necessary to understand where they will lead. It will be generally admitted that to tackle a problem successfully is not possible unless its extent is known. We need to know what the deficiencies in the ranks of the nursing profession are and we also need to know what the recruits for whom we seek will have to do when they have been prevailed upon to accept service. Dr. Cohen's idea is that the whole life of the community should be planned and that the community's nursing service is part of that plan—it is a planned nursing service. He refers to the correct use of total manpower and the assessment of productivity which concern the national economy as a whole. We have no doubt that Dr. Cohen is a logical person and that he would not wish to make extensive plans without trying to put them into effect. This implies that the fulfilling of his planned service would call for the direction of certain women to a course of nursing training and of those who were trained into

[1] "Working Party on the Recruitment and Training of Nurses: Minority Report", by John Cohen, M.A., Ph.D., F.B.Ps.S.; Ministry of Health, Department of Health for Scotland, Ministry of Labour and National Service; 1948. London: His Majesty's Stationery Office. 9½" x 6", pp. 84. Price: 1s. 6d. net.

one of the branches of nursing practice. Dr. Cohen refers to the present "outmoded code of discipline for nurses" and declares that, though improvements may have been introduced here and there, it is "still altogether out of keeping with modern notions of personal freedom". The same may be said of any idea that direction of women in regard to their participation in a nursing service should be undertaken. It may possibly be agreed that if an excessive number of applications for entry into training schools for nurses were received, only the most suitable candidates should be accepted; but that any women should be directed, willy nilly, to become nursing probationers is unthinkable in a democratic community. Apart altogether from any considerations of personal freedom, we are apt to forget that nursing is a profession in which those who have some sense of vocation are alone likely to excel.

Dr. Cohen also refers to the suggestion that a two years' course of study for nurses should be adopted—a suggestion made in the majority report. He holds that the institution of a two-year course of training for all nurses, if it was adopted as a permanent solution without further research, might be detrimental to the public interest and would certainly be a misinterpretation of the results of job analysis. At most, he thinks, a two-year course could serve as a temporary scheme pending further inquiry.

A year ago we commended to the attention of all who have to do with the control of nursing in Australia the report of the "working party" of which Sir Robert Wood was chairman. The minority report by Dr. John Cohen is equally worthy of attention. Neither document has put forward any general plan of action to deal with the whole question—this was not within the terms of reference of the "working party". There is, however, quite enough to justify action in several directions. If we object to any suggestion that compulsion should be used we are left with the necessity to make the conditions of work attractive for women of the right temperament who have ideals of service, in other words some kind of vocation. It is a drastic rearrangement of a nursing trainee's work that is needed as well as common sense in the matter of control and discipline. Something should be done to break down the "rigid hierarchy of staff" which is sometimes of a "quasi-military character". This has been discussed again and again in journals and reports and yet nothing is done. The general needs of the community in the matter of manpower can be used as a guide or even as a stimulus, but a great deal lies in the hands of the nursing organizations themselves to see that nurses are treated as responsible persons and not as schoolgirls. Underlying all efforts to create an adequate nursing service must be a proper understanding of the scope of nursing in the light of modern developments. This is a matter for a future discussion.

Current Comment.

THE DIFFERENTIAL DIAGNOSIS OF JAUNDICE.

JAUNDICE still remains a subject of difficulty. Even a physiological scheme of the causation cannot be drawn up simply, as is evidenced by the different classifications given in text-books. But whether one follows the original school of McNee or that of Rich and others, patients are seen whose jaundice gives rise to anxiety, centring round the question of surgical intervention. Hans Popper and Frederick Steigmann have studied a series of 285 patients and have analysed the processes of thought leading to the application of tests and thus to accurate diagnosis.[1] They point out that diagnosis depends upon two considerations: the presence or absence of damage to the liver cells, and marked interference with the flow of bile. By the latter expression they mean evidence of that disturbance of function characteristically found in established extrahepatic obstruction. The simplest indication of this is the reduction of urinary urobilinogen, an easy test sometimes neglected. The fæcal urobilinogen content is, of course, also reduced, and the alkaline phosphatase and cholesterol levels are raised in the blood serum. The validity of the many tests of liver function is more difficult to sum up, as is well known, and the authors admit that all these tests may yield what is generally called the false positive. They think from their study that two tests at least must be applied to establish the presence of liver cellular damage, and one to establish the existence of an important degree of block of bile flow. They have constructed a scheme, in which the diagnosis is represented as being diverted into one or other of two broad streams, the one that of medical jaundice, in which cellular damage is demonstrable, but not blockage of flow, the other that of surgical jaundice, in which these conditions are reversed. Between these two diagnostic streams, of course, flows that central indeterminate stream of cases in which there are substantial elements of blockage and cell damage. Study of each individual patient, with application of further tests if necessary, will correct any primary errors in most instances, but it is this third category which causes perplexity and anxiety. It is only fair to state that Popper and Steigmann leave little to diagnostic chance even in primary separation of categories, for they find that the following six tests and determinations are necessary even to separate the "medical" group in the first place: cephalin-cholesterol flocculation, albumin-globulin ratio, cholesterol ester ratio, hippuric acid, plasma vitamin A and serum non-protein nitrogen. The surgical group needed a group of tests in which the last three were omitted and thymol turbidity, urinary urobilinogen and bromsulphthalein determinations were substituted. However, it was found that the determination of the cephalin-cholesterol ratio, thymol content and albumin-globulin ratio would cover accurately two-thirds of all cases of jaundice. The first of these procedures subdivided the doubtful group into medical or surgical categories with reasonable accuracy, though subsequent adjustments were necessary in a small number. This flocculation test was taken as evidence of cell damage likely to be due to hepatitis, and the superadding of a definite degree of biliary obstruction did not shake the diagnosis seriously. The full details of this analytical study cannot be followed here, but the three procedures just mentioned gave 83% accurate results for non-surgical jaundice, and the addition of the estimation of the ratio of cholesterol esters to total cholesterol raised the percentage of accuracy in both medical and surgical types to about 84.

This presentation of the diagnostic methods apparently takes no heed of the clinical picture and the history, but the authors lay stress on the importance of this, for such significant points as exposure to toxic drugs, the presence of an abdominal mass, septic manifestations, and the general tenor of the history were found to be highly valuable, as one would expect. They admit, too, that the placing of some cases in their diagnostic scheme was by what they term hind-sight, which again might be expected. However, the general diagnostic plan lays emphasis on laboratory findings, though it is comforting to read that the whole battery of tests and determinations is not necessary in the majority of the problems presented by the single sign of jaundice. Perhaps one practical way to view this problem is to admit that any pathological service in a hospital must be given adequate opportunity to establish the reliability and diagnostic value of every test commonly used in jaundice, but that there is no point

[1] *Annals of Internal Medicine*, September, 1948.

in the routine performance of time-consuming procedures when the issue may be determined more simply. When that very important and often serious question arises whether a deeply jaundiced patient should be subjected to laparotomy or not, consultation with the pathologist and biochemist is most advisable in the interests of accurate diagnosis and the well-being of the person around whom the whole problem centres, the individual patient.

METHADON.

METHADON is the non-proprietary name given by the Council of Pharmacy and Chemistry of the American Medical Association to a synthetic analgesic compound originally prepared by German chemists and made available in the United States after the recent war. It has been prepared under a number of proprietary names and was recently brought under the provisions for the control of dangerous drugs in New South Wales, as we mentioned in these columns on September 18, 1948. It is a white crystalline substance, soluble in water and alcohol, but insoluble in ether, having the following composition: 6-dimethylamino-4,4-diphenyl-3-heptanone hydrochloride. Reports so far published on its clinical and laboratory trial suggest that it has significant advantages over other analgesics. E. B. Troxil[1] has studied the effects of its clinical administration to 400 patients for the relief of all types of pain, in particular comparing it with morphine and meperidine (pethidine), with which it shares some pharmacological characteristics. It was found that 10 milligrammes of methadon were as effective in relieving pain as 15 milligrammes of morphine or 150 milligrammes of meperidine. The oral administration of the elixir was almost as effective as the hypodermic injection; the onset of action was within two minutes after intravenous injection, fifteen or twenty minutes after hypodermic injection or oral administration in elixir form, and thirty minutes after oral administration in capsules or tablets. Adequate or complete relief of pain was obtained by 81% of the 400 patients and this figure would be increased to 86% if a group of patients is excluded who received methadon for labour pains, as the drug has been proved ineffective for this type of pain, in contrast with meperidine. Less sedative effect and euphoria resulted from methadon than from morphine. Side effects were experienced by 13% of patients, including nausea and vomiting, which occurred chiefly in ambulatory patients; the most satisfactory dosage for general use from the standpoint of freedom from toxic reactions was found to be 5·0 to 7·5 milligrammes. A moderate degree of tolerance was developed in some instances, but there was no evidence of addiction; the number of patients was, however, considered too small to allow a final statement concerning addiction. It is interesting and hopeful to note that it was possible to replace morphine, meperidine, "Pantopon" (the total alkaloids of opium as soluble hydrochlorides) and dihydromorphinone with methadon in persons addicted to each of these drugs; none experienced withdrawal symptoms during the time the narcotic was being withdrawn or after the termination of treatment with methadon.

These findings of Troxil are substantially supported by E. M. Christensen and E. G. Gross,[2] who have recorded some further points of interest from their observation of eleven human volunteer subjects tested by the Wolff, Goodall, Hardy method and 69 patients who received methadon as a pre-anæsthetic agent. They considered, however, that methadon, as an analgesic agent, was three times as potent as morphine and many times more potent than meperidine. The particular interest of their observations is in the effect of associated drugs. Therapeutic doses of atropine and scopolamine given subcutaneously decreased both the intensity and duration of the analgesic effects of methadon and morphine as measured by determination of the pain threshold; the duration but not the intensity of the analgesic action of meperidine was lessened. When these analgesic drugs were administered intravenously with atropine or scopolamine, the only consistent change was a shortening of the duration of effect of methadon. The addition of neostigmine increased both the intensity and duration of the analgesic action of the three drugs as measured by the determination of pain thresholds. Christensen and Gross, whose approach to methadon is from the anæsthesia viewpoint, consider it must useful as an analgesic in the post-operative stage and endorse its value in the relief of pain from other causes, a value which their work suggests should be enhanced by the accompanying administration of neostigmine. It now remains to be seen whether this apparently superior analgesic will displace the older established drugs in actual practice.

[1] *The Journal of the American Medical Association*, April 3, 1948.

[2] *The Journal of the American Medical Association*, June 12, 1948.

INFANT CARE IN NEW GUINEA.

SOME fundamental fallacies in the judgement of native peoples by whites are brought out in a recent report by E. H. Hipsley,[1] who, after first-hand observation of the New Guinea native, considers that "it is incorrect to consider the native an inferior human being because he does not possess our gadgets; in his own environment he is our master". His report, which deals with infant care and welfare, provides striking evidence of the common sense and resourcefulness of the mother—for example, in the matter of supplementary feeding of infants. She commences supplementary feeding as soon as the infant will ingest the food, which may be after anything from a few days to three months, but is usually after one month. The first foods given are taro, sweet potato, yam or banana, which have been premasticated by the mother to the consistency of a soft pulp. This may not appeal to us æsthetically, but it is a sound way to prepare starchy foods. Later the child will nibble at a piece of taro, sweet potato or a stick of sago. A little pig or fish may be given when he is a year old. Water, soup or other fluid is not given before the age of six months in most areas; despite this inanition fever did not appear to be common. Weaning is usually sudden at the age of about two years; the delay, Hipsley suggests, may be associated with the absence of domestic animals as sources of milk and also with the desire to avoid pregnancy. There are no set times for breast feeding, the breast being given to the infant whenever he demands it. The natives consider it cruel to deny food to an infant who wants it. For the first two years of life, Hipsley states, little is done to destroy the infant's feeling of security in his environment—an interesting echo of widely accepted psychological principles. The infant wears no clothes; so that the problem of washing napkins without soap does not arise. When being carried or lying on a mat he is placed next to a piece of cloth or dried grass and this with coconut fibre or soft leaves for "mopping up" simplifies toilet arrangements. He is bathed every day with cool water. Ingenious methods have been devised to carry him in accordance with local terrain and circumstances. He sleeps alongside his mother at night, often cradled in her arms. It is usual for the girls aged from six to twelve years to act as nursemaids, the relationship benefiting both them and the babies. A taboo exists on sexual intercourse from the later stages of pregnancy till the child is walking, though the exact reason for this is not clear. The fathers are affectionate to their children and help to mind them. In conclusion it is interesting to note Hipsley's comment that it would be difficult to suggest any radical changes in the native practice, having regard to the fabric of environment, and conversely (apparently lest we feel inferior) to suggest improvements in Australian methods of infant care and welfare based on observations in New Guinea. His statement is equally true in Australia and in New Guinea that "radical changes imposed without regard to the cultural background almost invariably have widespread repercussions".

[1] *Food and Nutrition Notes and Reviews*, July and August, 1948. Issued by the Australian Institute of Anatomy, Canberra.

Abstracts from Medical Literature.

DERMATOLOGY.

Epithelioma following Treatment with Liquor Picis Carbonis.

G. HODGSON (*The British Journal of Dermatology and Syphilis*, September, 1948) states that skin epithelioma is a recognized occupational hazard to those who work with crude oils, pitch or tars. Skin cancer has been reproduced experimentally in animals with tar distillates. Epithelioma following the therapeutic application of tar must be a very rare phenomenon, in view of the universal use of tar. A man, aged sixty-two years, was treated in 1940 for *pruritus ani* with a 3% solution of *liquor picis carbonis*. He ceased attending hospital as an out-patient, but continued to use the tar lotion for six and three-quarter years. On examination in March, 1947, near the anus, which was surrounded by thickened and excoriated skin, was a typical tar wart and a frank epitheliomatous ulcer three-quarters of an inch in diameter just below the anus on the median raphe of the scrotum. Biopsy revealed the lesion to be a squamous-celled epithelioma. The author speculates on the importance of scratching as a factor in producing the epithelioma.

Lichen Sclerosus et Atrophicus of the Vulva.

E. G. WALLACE AND R. NOMBAND (*Archives of Dermatology and Syphilology*, February, 1948) state that *lichen sclerosus et atrophicus* occurs much more frequently in women than in men. The disease is almost never limited to the vulva alone. The extragenital lesions are most often seen on the upper part of the trunk, on or beneath the breasts and over the clavicles, shoulders, upper part of the back, neck and forearms. The most frequently observed symptom is mild pruritus. Because of the whiteness of the vulvar lesions *lichen sclerosus et atrophicus* is frequently confused with leucoplakic vulvitis. *Lichen sclerosus et atrophicus* of the vulva may be distinguished clinically from leucoplakia by the characteristic plaque of strikingly white wrinkled atrophic skin and mucous membrane covering the entire vulva and perianal region in a continuous and symmetrical fashion, sharply outlined from the surrounding normal skin, and by the elementary lesion, a small flat-topped white papule which may have on its surface several black comedo-like plugs. Lesions elsewhere on the body are almost always seen. The authors feel that the term leucoplakia should be reserved for a hypertrophic precancerous disease of the mucous membranes, characterized by whiteness and thickening, which may occur in lines or plaques or diffusely. On the vulva there is seldom extension of this process to the perianal skin, and no lesions are observed elsewhere on the body. *Lichen sclerosus et atrophicus* may be differentiated from leucoplakia on histological grounds, the former showing hyperkeratosis, atrophy of the rest of the epidermis and a peculiar sclerotic change in the connective tissue just beneath the epidermis, with loss of elastic tissue in the zone, while the latter shows increase in all layers of the epidermis, with minimal and secondary changes in the cutis. In the authors' opinion it is important that the two diseases, *lichen sclerosus et atrophicus* and leucoplakia, be correctly diagnosed because the first is a benign lesion and the second is a known precancerous lesion for which vulvectomy is required.

Lichen Planus of Alimentary Canal and Tympanic Membranes.

R. P. WAUN, P. HALL-SMITH AND J. O'N. DAUNT (*The British Journal of Dermatology and Syphilis*, July-August, 1948) report a case of *lichen planus* in a patient who, in addition to the more commonly involved site, had lesions in the rectum and on the tympanic membranes. They state that the more commonly affected sites are the skin, tongue and mouth, but that lesions have been described involving the urethra, nose, larynx, *glans penis*, colon and anus, the bladder mucosa, the gastric mucosa, and the vulva and vagina.

Fungous Infections of the Hands and Feet.

P. D. C. KINMONT (*The Practitioner*, May, 1948) states that epidermophyton infections of the feet are the most common type of mycotic infection met with in practice. The infection tends to be localized and chronic in the colder part of the year with seasonal exacerbations in the hot summer months. Scaling infections of the toes are usually due to *Epidermophyton floccosum*, vesicular lesions of the soles to *tinea pedis*, and diffuse erythema and scaling to *Trichophyton rubrum* infections; the last-named is particularly resistant to treatment. The fungous mycelium grows in the dead horny layers of the epithelium, sites of election being the fourth interdigital cleft and the arch of the foot. These areas are subject to the secretion of profuse alkaline sweat which macerates the thick horny layer and provides an ideal culture medium for the mycelium. Hyperhidrotics are therefore particularly prone to fungous infection. Circulatory stasis due to varicose veins or vasomotor disturbances is important in some cases. Excess carbohydrate and alcohol consumption should be avoided. Shoes and socks are readily contaminated. Signs and symptoms are variable. There may be slight irritation. Cracks and fissures become infected with pyogenic organisms at times and lead to local inflammation and lymphangitis. The common chronic form is limited to the cleft between the fourth and fifth toes. The disease tends to spread into the thick moist horny layer of the sole rather than into the delicate epithelium on the dorsum of the foot. Isolated chronic patches are often seen in the arch of the sole and below the medial malleolus. After a period varying from two weeks to some months, dermatophytid phenomena may occur. Vesicles and bullæ erupt on the sole of the unaffected foot, on the palms and palmar surfaces and sides of the fingers. The eruption is accompanied by intense irritation. The more superficial vesicles burst, leaving a weeping surface, but the deeper ones tend to dry, leaving brownish scales. It may simulate contact dermatitis, especially if irritated by the application of strong fungicides. Contact dermatitis usually presents as superficial closely set vesicles mainly in the dorsum of the hands and fingers, erythema is more marked, the vesicles are more readily destroyed and new crops follow further exposure to irritants, whereas the dermatophytid crops occur regularly. Dermatophytides occur only in the presence of an active fungous infection and result from absorption and circulation of the products of the fungous metabolism, the eczematous reaction occurring when a sensitized area of skin is reached. Fungous mycelium cannot be demonstrated by examination or culture in the secondary lesions; therefore fungicides can only be harmful irritants to the acute process. Other dermatophytid reactions include eczematous patches on the legs below the knees and a generalized follicular lichenoid eruption. Dermatophytides clear spontaneously once the parent focus is removed; exacerbations often follow energetic treatment of the focus. Epidermophyton infections of the hand do occur, but are rare. The diagnosis should never be made unless mycelium can be demonstrated in the lesions. The differential diagnosis is from dyshidrosis or pompholyx, contact dermatitis, eczema, pyogenic infections, pustular psoriasis and bacterid *dermatitis repens, psoriasis vulgaris, erythema multiforme* and tertiary syphilis. Treatment in the acute stage consists in "soaks" twice daily for ten minutes of 1 in 4000 potassium permanganate solution and fatty acid fungicides such as undecylenic acid. The application of strong keratolytic fungicides in the acute stage can only do harm. In the subacute stage of vesicular weeping lesions treatment is by wet dressings of phenyl mercuric chloride 0·5% precipitated, or calamine 15 grains, zinc oxide 30 grains, glycerin 30 minims and distilled water to one ounce. Chronic desquamating lesions are treated with Whitfield's lotion twice daily for a week, followed by Whitfield's ointment for another week. The exposed mycelium may now be attacked with a mercurial preparation or fatty acid preparation. Castellani's paint is also useful. Therapy should be continued for some weeks after clinical cure.

Sunburn and Para-Aminobenzoic Acid.

S. ROTHMAN AND A. B. HENNINGSEN (*Journal of Investigative Dermatology*, December, 1947) report the protecting effect of para-aminobenzoic acid against sunburn. The method of application, the choice of light source, the choice of a base, and the measure of effectiveness are described. The results obtained in experiments with mercury lamps and with sunshine prove the substance to be a highly effective protective agent. The results of tests on two patients, one with solar herpes and another with chronic discoid *lupus erythematosus*, were excellent.

Stomatitis with Glossitis following Oral Therapy with Penicillin Tablets.

L. GOLDMAN AND J. FARRINGTON (*Archives of Dermatology and Syphilology*, March, 1948) state that it has been shown that there is a potential buccal muco-membranous hypersensitivity in persons with contact dermatitis due to penicillin. It has also been shown that topical use

of penicillin in the mouth, especially with troches, can provoke stomatitis of both the direct irritation type and the allergic-contact type. The author quotes two cases following the use of penicillin tablets. The patients improved rapidly when the antibiotic was discontinued, and the reactions were correlated with contact reactions of the buccal mucosa in tests with crystalline penicillin.

UROLOGY.

Malignancy in Bladder Tumours.

A. L. DEAN (*The Journal of Urology*, February, 1948) states that the purpose of his paper is to record frequent discrepancies in the diagnosis of vesical neoplasms based on examinations of cystoscopic biopsy tissue and the tissue available when the entire organ is removed. The clinical material studied consisted of 100 consecutive patients with bladder tumours treated by diversion of the urine and total cystectomy. In a little more than 50% of all patients operated on, the condition was of a greater degree of malignancy than cystoscopic biopsy had indicated. When treatment as radical as urinary deviation and total cystectomy is contemplated, there should be reasonable assurance that after removal of the entire bladder and prostate the patient will be completely rid of his disease. Unfortunately pre-operative pathological examinations frequently have provided such misleading data that the true nature of the growth remained uncertain. In a smaller proportion of cases even direct observation and palpation of the exposed bladder have failed to demonstrate the full extent of the disease. Until such time as more exact methods of examination have been devised, the successful treatment of vesical neoplasms will depend to a large extent on mature clinical judgement.

Renal Infarction.

F. C. REGAN AND E. G. CRABTREE (*The Journal of Urology*, June, 1948) have made a careful critical study of 90 cases of renal infarction reported in the literature, and have added four cases of their own. In 70 of the outside cases a modern urological study has been made; in the other 20 the examinations were less comprehensive. In 71 of the 94 cases the infarction was arterial. Most of these were sterile infarcts. Apparently renal function is greatly damaged for a time, but return of function to the undamaged parts may be expected. Danger to the patient is great when the lesion is bilateral. The diagnosis of arterial infarction rests on the following points: (i) the sudden onset of pain in the flank or upper part of the abdomen, (ii) demonstration of a non-functioning kidney on one side, (iii) the finding by retrograde pyelography of normal pelvis and calyces on the affected side, (iv) the presence of disease of the heart or blood vessels, and (v) the presence of albuminuria together with microscopic and sometimes gross hæmaturia. In the case of old infarcts, cystic degeneration may occur and lead to a false pyelographic diagnosis of neoplasm. When total infarction occurs in the absence of infection the end result is complete renal atrophy. Venous infarction is a much more serious disease. Clots are often infected, and the condition is either bilateral or tends to become so by extension of thrombosis. Of twenty cases reported in the literature, eight of the subjects died. This disease is associated with septic states: pneumonia, enteritis, puerperal infection, pyelonephritis, pyæmia or thrombophlebitis. The kidney is greatly enlarged. There is usually gross hæmaturia. Pyelography shows deformity and incomplete filling of calyces and pelvis. The condition runs a progressive and septic course, and the patients usually do not recover unless nephrectomy is performed. One-quarter of the cases were in infants with severe enteritis. The third variety of infarction is traumatic and it occurs only rarely. The symptoms are pain in the flank and hæmaturia following an accident, and a mass is felt in the renal area. Hæmorrhage is found around the pedicle, while scattered areas of necrosis occur in the kidney.

Pyocyaneus Infection of the Urinary Tract.

J. A. LAZARUS, M. S. MARKS AND L. H. SCHWARZ (*The Journal of Urology*, February, 1948) have made a study of fifteen cases of urinary tract infection by the *Bacillus pyocyaneus* (*Pseudomonas aeruginosa*). Five of these were due to the mucoid variant and fifteen to the non-mucoid type. Streptomycin was administered to the patients in all of the former and in six of the latter cases. In two of the mucoid type success was achieved and failure in the other three. The non-mucoid type showed only mild pathogenicity. Of the six patients in this group, three responded to streptomycin, while the other three showed complete resistance to the antibiotic.

Renal Complications of Hyperparathyreoidism.

E. BURNS AND C. M. WHITEHEAD (*The Journal of Urology*, April, 1948) state that primary hyperparathyreoidism produces no specific symptoms, and the majority of cases are unrecognized until complications of importance have developed. It should be considered a possibility in every case of renal calculi. Hypercalcæmia (11 milligrammes *per centum* and over) and hypophosphatæmia (three milligrammes *per centum* and under) are the two most important laboratory findings. Surgical removal of the associated parathyreoid adenoma is the only effective treatment. X-ray therapy has been disappointing on the whole. The authors have used it in a case in which surgical intervention in the neck and mediastinum failed to effect removal of enough parathyreoid tissue to stabilize calcium metabolism. Medical treatment has likewise been unsatisfactory. The adenoma of the parathyreoid is a benign lesion itself, but it disturbs body economy by producing an excessive amount of parathyreoid hormone. Apart from the development of multiple small calculi in the kidneys, decalcification of the skeleton occurs.

Tumours of the Testis.

L. G. LEWIS (*The Journal of Urology*, April, 1948) has made a careful study of the diagnostic and therapeutic results in 250 cases of neoplasm of the testis. Of the subjects 109 had seminoma, only two had simple interstitial cell growths, while the remainder, 139 in all, had various types of undifferentiated carcinoma, choriocarcinoma and teratocarcinoma. For the commonest single type of tumour, seminoma, it is probable that simple orchidectomy followed by irradiation of the periaortic gland area is sufficient, as these growths are very radiosensitive. Nevertheless radical orchidectomy, in which all glands up to the renal pedicle are removed, was carried out in 69 of the 109 cases. The mortality in the seminoma group was 9%. The mortality was high in the more malignant group of 139 cases, being 100% for chorioepithelioma, down through 50% for undifferentiated carcinoma and 24% for teratocarcinoma. It was found that 43% of all patients in the whole group had metastasis on admission. The author states that the dose of irradiation necessary following operation in the seminoma group is only 1000*r*. For undifferentiated carcinoma, adenocarcinoma and papillary adenocarcinoma radical orchidectomy is indicated, followed by prophylactic X-ray therapy up to 3000*r*. For trophoblastic tumours, choriocarcinoma and chorioepithelioma, radical orchidectomy is required, followed by irradiation if all glands cannot be removed at the operation; the dose of irradiation in such a case should be 5000*r*.

Physiology of the Intact Human Ureter.

J. LAPIDES (*The Journal of Urology*, April, 1948) has undertaken an investigation of patients with apparently normal urinary tracts to determine ureteric physiology. Since it is not feasible to cut or to stimulate mechanically nerves in the unanæsthetized human patient, it was decided to accomplish this by pharmacological means. In the first section of the work general observations were made on the efficiency of apparatus employed, and on the effect of mechanical stimuli on ureteric peristalsis. The second section involved observations on the effect of the block of transmission of nerve impulses on ureteric contractions. The third section was concerned with the results of stimulation of the sympathetic and parasympathetic nervous system on ureteric activity. In the fourth section the effects of drugs reputed to possess a relaxing or stimulating influence on smooth muscle were studied. Before the experiment was started on any patient, diuresis was secured by the forcing of fluids. Ureteric catheters were inserted up to varying levels, and contractions of the ureters were recorded by a special device. It is considered, as a result of these experiments, that the tonus and rhythmic contraction of the intact human ureter are entirely independent of the central nervous system, including the autonomic nervous system and its ganglia. The normal adequate stimulus for initiation and maintenance of ureteric peristalsis is a stretching of the smooth muscle fibres of the ureter by urine from the kidney. Within certain limits peristaltic activity of the ureter is altered by changes in urine volume output. Contractions and tonus of the ureter were not directly affected by any of the well-known sympathetic and parasympathetic stimulants. It was not found that morphine, as is reputed, caused increased peristalsis and tonicity of the ureter. "Prostigmin" acted as a diuretic in about 50% of cases.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on September 30, 1948, at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney, COLONEL A. M. MCINTOSH, the President, in the chair.

The Nervous Child.

DR. D. G. HAMILTON read a paper entitled "The Nervous Child" (see page 41).

PROFESSOR W. S. DAWSON read a paper entitled "The Nervous Child" (see page 43).

DR. D. W. H. ARNOTT thanked the speakers for their interesting papers; he said that Dr. Hamilton's paper revealed him as having great possibilities as a psychiatrist. With regard to the type of patients regarded as temperamentally unstable—children with habit spasms, neuroses, stammering, temper tantrums *et cetera*—Dr. Arnott said that it had to be remembered that the vast majority grew into stable adults, and very few became psychopathic persons. Nearly all those present, if they looked back into their early lives, would find there many of the qualities under discussion. In dealing with children, it had to be remembered that there occurred a rapid growth and maturing of abilities at the various ages; the process had to be harmonious and to occur at its correct time. Some such abilities were the achievement of control over the bowels and bladder, walking, reading and general scholastic capacity. Happy was that child in whom those capacities developed at their proper time, and unhappy was the child in whom there was unevenness in the development of those characteristics. Dr. Arnott thought that most nervous troubles were caused by undue pressure on an average child or average pressure on a child who had an uneven profile of developing abilities, and treatment should be aimed at relieving those pressures. He should be encouraged to live successfully within his easy capacity.

DR. N. E. KIRKWOOD said that in Dr. Hamilton's paper it had been said that often the parents were to blame. Dr. Kirkwood thought that often the fault went further back, and the teacher of the parents was to blame. It was known that every child was different from every other child; so were all parents different from other parents. Much advice was given through the baby health centres and child welfare clinics, but Dr. Kirkwood thought that not sufficient allowance was made for the state of development of the parent. As an example he instanced the mother with several children, whose maternal instinct was strongly developed and whose whole interest lay in her family. Advice to her not to pick up her baby would have a different effect from its effect on a girl with her first baby, who had probably been in one of the services during the war and had many other interests besides her family. Advice not to pick up the baby might be very necessary to the first type of mother, but very wrong for the second. Dr. Kirkwood then referred to what Profesor Dawson had said about the child's need for security and affection and an "Atlantic Charter" for children. When advice was given to parents, it must be realized how that advice was going to be implemented at the parents' stage of psychological development.

DR. A. T. EDWARDS said that psychiatrists generally saw children representing what had been called "euphemisms" of the nervous child—those showing some rather serious disorder of conduct or emotion which had led to the parents' seeking specialist advice. It was extremely rare to find in such a case that the problem lay in the child; it nearly always lay in the environment and especially in the parents. There were four main ways in which the parents were responsible; they failed to walk the tight-rope between the four main dangers—rejection and neglect on the one hand, and over-protection, and coddling and spoiling on the other. But that was only half the question. The majority of parents did not fall into any of those faults through caprice; they generally had some personality deviations of their own. It was necessary to investigate not only the handling of the child by the parent, but also the parent's own personality problems. Dr. Edwards went on to describe the case of a girl, aged sixteen years, who had been taken to him by her mother on account of mild emotional disorders. The mother wanted to see him first; she told him that he need make no inquiry into the sex aspect of the child, because she herself had always washed the girl's genitals even until the previous day so that the girl would have no curiosity. It was obvious that the girl was suffering from feelings of guilt over masturbation. Removing the girl from her mother solved the girl's difficulty; but it was harder to treat the mother's exactly similar feelings of guilt shown in her treatment of the girl. The Biblical statement about the sins of the fathers being visited on the sons could easily be transformed into the problems of the mother becoming the problems of the child.

DR. L. J. JONES had appreciated the papers and discussion. He said that, having a young daughter and son of his own, he was interested in the advice given by the baby health centres to his wife. They insisted on certain food for the child whether he liked it or not; the mother was told to persevere with it. Dr. Jones said that while the baby health centres in particular continued to give advice of that nature, he could not see how the life of the young child was going to be happy and contented. The same observation applied to advice not to pick up the baby, to toilet habits *et cetera*. It was a matter that must be gone into. Advice given by clinics was taken very literally by the young mother and led to endless strife.

DR. E. H. M. STEPHEN said that as a pædiatrician he had found both papers most helpful. Referring to asthma, Dr. Stephen said that he had made one pertinent observation at the asthma clinic to which he was once attached at the Children's Hospital—most mothers complained that the child had attacks on Saturday night. First there was the class of children who were athletic; they played games so hard that they went home exhausted. The other class of children went to the pictures and went home exhausted through excitement. Saturday night was mother's night off from cooking and something was bought at the delicatessen shop, usually corned beef. It appeared that an overtired nervous child's digestion did not rise to the feat of successfully dealing with that type of diet.

Colonel McIntosh, from the chair, thanked Dr. Hamilton and Professor Dawson for their papers, which had approached the problem from different points of view. Particularly as Dr. Hamilton had dealt with it, the problem was very common. Colonel McIntosh said that he had been struck by something that Dr. Arnott had said; one could think of many children who were regarded as "problem children" and perfectly obnoxious, and who eventually, perhaps through falling into the hands of sympathetic teachers at school, grew up perfectly normally. It was the exception to find that they had not turned out well and lost all their disorderly habits. Of course, there were some extreme cases; but each case must be treated on its merits—not only must the child itself be dealt with, but also the parents. It was often difficult to induce the parent to realize that there was anything wrong with her own child, though she might think similar behaviour horrible in her neighbour's child. She was hard to convince that there was anything wrong with the way she was bringing up her children. Often if it was possible to put the child in other hands, removal of the adverse influence resulted in rapid removal of all symptoms. The remedy need not always be so drastic as in the case quoted by Dr. Hamilton. In conclusion, Colonel McIntosh said that those present had all appreciated and enjoyed the papers.

A MEETING of the New South Wales Branch of the British Medical Association was held on November 18, 1948, at Broughton Hall Psychiatric Clinic, Leichhardt. The meeting took the form of a series of clinical demonstrations and was arranged by DR. GUY LAWRANCE, the medical superintendent of the clinic.

Artificial Fever.

The first matter discussed was the therapeutic action of artificial fever, and the methods of its production—inductothermy, malarial therapy and the use of "T.A.B." vaccine.

Inductothermy.

With regard to inductothermy, it was pointed out that the inductotherm consisted in effect of a short-wave radio generator of 25 metre wave-lengths (12,000 kilocycles). The high-frequency current passed through an endless coil, which encircled the patient's body, or preferably was arranged in a "pancake" over the patient's thorax and abdomen. The current, passing through the coil (about five amperes), induced eddy currents in the body tissues, and it was the resistance of the body tissues to those currents which caused the increase in temperature. The heating effect was most intense in the neighbourhood of the coil, but was dissipated through the body by the blood stream. Since there was no contact with electrodes, there was no risk of burns, except in special circumstances; for example,

if the patient's hand made intermittent contact with the thigh a high potential was set up between the two surfaces, and crateriform burns might occur.

The patient was given a salt and water enema on the night before treatment, and five grains of "Hebaral Sodium" were given on the morning of treatment. He was placed on a wooden table and covered with blankets, which were arranged in such a way as to allow of ready access to the rectum for the purpose of taking the temperature without exposing the body. Care had to be taken that no metallic articles made contact with the body. The temperature, pulse rate and respiration rate were recorded every quarter of an hour. If conditions were favourable, the temperature rose five or six degrees in two or three hours. The machine was switched off when the temperature was 105° F. A further rise to 106° F. occurred, and if that figure was exceeded the temperature was reduced by partial exposure of the patient. The high temperature was maintained by the insulating effect of the blankets and by heating of the room. In the treatment of general paralysis of the insane, an attempt was made to hold the temperature at 105·8° F. for two hours and between 103° and 104° F. for about eight hours. That represented one treatment. Treatments were repeated twice a week until the patient had had 100 hours at a temperature above 103° F. That was one course. When it was desired to reduce the temperature at the end of treatment, the patient was exposed and sponged. During pyrexia, water loss was made good by the administration of plenty of fluids containing common salt. If the patient became restless, a hypodermic injection of 1/100 grain of hyoscine, one-sixth of a grain of morphine and 1/200 grain of atropine was given. Respiration became shallow and rapid during the pyrexia. If apnœa occurred, "Carbogen" was given, and if the rhythm did not become normal the temperature was reduced. If perspiration did not occur the temperature required to be raised slowly and respiration carefully watched. Between treatments patients were ambulatory, and the condition of many of them improved, in respect of both physical condition and mental state.

Malarial Therapy.

It was pointed out that there were a number of contra-indications to malarial therapy; they included chronic nephritis, cirrhosis of the liver, myocardial degeneration, tuberculosis, severe anæmia, extreme old age and great obesity. Pregnant women had received the treatment even towards the end of pregnancy, but there was a risk. The same strain of benign tertian malaria had been used in New South Wales for many years, being injected from patient to patient.

Inoculation was best made direct from donor to subject at the donor's bedside. Two millilitres of unaltered blood were injected into the muscles, the subcutaneous tissues or the veins; 0·1 or 0·3 millilitre could be injected intradermally. Dattner considered the site between the shoulder blades the safest. For intravenous use the blood did not need to be typed, and up to five millilitres could be given safely, so long as no blood clot was in the syringe. Within twenty-four hours there was usually a febrile response to the absorption of the foreign blood. The incubation period was on an average ten to twelve days, and ranged from seven to twenty-one days; it might be as short as forty-eight hours. Although the periods of pyrexia should be tertian, they were sometimes quotidian owing to the development of a double cycle. Few patients could tolerate more than twelve rigors. The temperature attained a height of 105° or 106° F. Usually the infection had to be terminated after seven to ten rigors on account of increasing debility. The strain used was highly susceptible to quinine, which was given in doses of five grains three times a day for a week. Spontaneous recurrence was unknown, as was mosquito-borne infection from patients under treatment to others.

The Typhoid Vaccine Method.

In the discussion of the technique of the typhoid vaccine method, it was pointed out that the benefits of protein shock were thought to be due to hyperpyrexia, increased circulation, stimulation of tissue resistance with antibody formation, and destruction of lymphocytes with liberation of their antibodies. The "T.A.B." vaccine used was prepared by the laboratories of the Department of Public Health of New South Wales. The doses of vaccine were given intravenously; about two or three hours after the first injection a second was given, which "boistered up" the rise in temperature produced by the first. The treatment was given at intervals of three days. The patients were well covered with blankets to keep the temperature elevated, and a nurse was in constant attendance. The treatment was not so severe as malarial therapy. It was of use in treating patients who were physically too weak to stand the latter, which was a much better treatment. The vaccine gave rise to a chill and a fever that began one hour after injection. Headache, nausea, muscle and joint pains and at times abdominal cramps occurred. The fever might persist for a number of hours, varying from two to twelve. Eight treatments were given, spread over twenty-one days. The highest temperature attained was 108° F. Patients developed increased tolerance to the vaccine, and the higher doses did not always produce the higher temperatures. The treatment often had the effect of building up a debilitated neurosyphilitic patient. It had to be accompanied by a course of tryparsamide injections.

Penicillin in Neurosyphilis.

Attention was drawn to statements made by Stokes and his co-workers in *The Journal of the American Medical Association* of April 17, 1948, to the effect that penicillin alone would "catch up" on patients treated with malaria in the second and third years of treatment. Malaria treatment produced a greater immediate improvement in the serological findings in the first year. Stokes *et alii* advised doses of 40,000 to 80,000 units of water-soluble penicillin every two hours, day and night, until between 9,000,000 and 10,000,000 units had been given. Dattner stated more clearly than other observers that all that was expected from treatment was the extermination of the infection. The symptomatic improvement thereafter depended on the recovery of the nervous tissue—a process which they had but little power to influence. At Broughton Hall several patients had been treated with malaria and penicillin together, as had been advised in the earlier literature; but the experience was too small to give results of any value.

Neurosyphilis.

The first patient with neurosyphilis, a woman, aged fifty-six years, had a family history of nervous disease. Her husband had deserted her soon after their marriage, and she had lived with a *de facto* husband until he had died about a year before her admission to hospital. She had one daughter, aged thirty-eight years, who was healthy. For a year prior to her admission to hospital she had been depressed and refused to leave the house. Severe pain had developed at the site of an old *herpes zoster* lesion. On examination of the patient her blood pressure was raised. Her blood and cerebro-spinal fluid reacted to the Wassermann test, and the gold sol curve obtained from the cerebro-spinal fluid was of the paretic type. Mentally she appeared reasonable, but she was said to have acted rather childishly at home. Malarial therapy was instituted, but ceased after six rigors; 10,000,000 units of penicillin were given.

Congenital Neurosyphilis.

The second patient shown was a female, aged twenty years, suffering from congenital neurosyphilis, whose mother and sister had died of general paralysis of the insane. Her father and elder brother did not appear to be infected. The patient had been normal until the age of eighteen years, when she found that her gait was becoming unsteady and her hands tremulous. Her mind steadily deteriorated until she had become childish, labile in emotions and quite irresponsible. Physical examination confirmed the diagnosis of congenital neurosyphilis. She was given a course of "T.A.B." vaccine, seven malarial rigors were induced and 10,000,000 units of penicillin were administered. It was also proposed to administer a course of arsenic intravenously; as her optic disks were pale, it was thought unwise to use tryparsamide, "Mapharsen" being more suitable. It was noted that the onset of the disease had not been marked by cerebral seizures. The patient was not very cooperative, and the prognosis was not bright. The devastating progress of the illness and the fact that one sibling and the father were free of infection illustrated the strange behaviour of the *Treponema pallidum* in maternal syphilis.

Dementia Paralytica.

The third patient, a married woman, aged forty-one years, had undergone a course of treatment for syphilis in 1940. In 1943 she had become emotionally unstable, and physical and serological evidence of syphilis was found. The gold sol curve was of the paretic type. A course of malaria was given as well as twelve intravenous injections of tryparsamide. Three more courses of injections followed. In 1948 she was readmitted to hospital in a dull and retarded state, much deterioration having occurred. She had auditory and visual hallucinations and her memory was very defective. The results of physical and serological investigations were

unchanged. She underwent a course of eight malarial rigors and was then given a course of penicillin to a total of 10,000,000 units followed by twelve injections of tryparsamide.

Tabes Dorsalis.

The next patient, a male, aged sixty years, had been admitted to hospital in July, 1948, with severe lightning pains in the legs, feet, body and back. A diagnosis of *tabes dorsalis* was made. He was considered physically unfit to stand heat therapy, and a course of twelve injections of tryparsamide was given, with temporary improvement. He was then given 100 hours of treatment by inductothermy, and a further course of arsenical injections. He appeared to be relieved of his pain and was physically well.

A second patient suffering from *tabes dorsalis*, a man, aged thirty-eight years, had developed primary syphilis at the age of twenty-two years, but had had no treatment. When admitted to hospital in January, 1948, he had severe pains in his legs, characteristic neurological changes, and a heart murmur indicative of aortic regurgitation. His blood pressure was 176 millimetres of mercury, systolic, and 68 millimetres, diastolic. His blood and cerebro-spinal fluid yielded the Wassermann reaction, and the gold sol curve was represented by the figures 5411311100. Therapy instituted included six malarial rigors, five treatments with inductothermy and eleven injections of "Mapharsen".

Meningo-Vascular Syphilis.

A male patient, aged fifty-two years, was then presented, who ten years previously had suffered from staggering gait for a short time and was thought to have had a stroke. Two years before his admission to hospital he became impotent, and eight weeks before his admission he had a stroke, which paralysed his left arm and leg and affected his articulation. His blood and cerebro-spinal fluid reacted to the Wassermann and Kahn tests, and the gold sol test produced a curve represented by the figures 5555555444. In view of his weak physical condition he was treated by the injection of water-soluble penicillin to a total of 10,000,000 units in twenty-five days, and showed considerable improvement. His condition was regarded as being meningo-vascular syphilis in contra-distinction to the parenchymatous form, in which the mental degeneration was slow and progressive. The "stroke" was considered to have been an unfortunate incident, and it was thought that he might develop a state of secondary dementia due to its effects.

Schizophrenia.

A series of patients were then presented suffering from schizophrenia, a term which, it was pointed out, had been introduced by Bleuler in 1911 to cover all types of functional mental illness except manic-depressive states. Schizophrenia in its typical form was said to be a plain, steady deterioration of the entire personality, usually showing itself in the period of adolescence. It was indicated by the occurrence of disorders of feeling, of thought and of conduct, with increasing withdrawal from the environment. If the mind-splitting was due to a functional cause, the outlook was not good. If it was due to an idiopathic or endogenous degenerative process, the prognosis was grave. The whole disease entity was not properly understood, but it was a very common disease. Treatment was very often of no avail and the patients rapidly became demented. Research was being conducted on a world-wide basis, but electro-convulsive therapy or induction of insulin coma was still of doubtful value.

The first patient was a schoolgirl, aged sixteen years, whose father was a patient at Broughton Hall. She had been a delicate child, suffering from many illnesses, including rheumatic fever accompanied by rheumatic endocarditis and chorea at the age of fourteen years. She was treated for the chorea in isolation and on returning home from hospital suddenly developed the idea that she was regarded as a bad girl and had venereal disease. She refused to leave home, avoided the neighbours, became confused and wrote foolish letters. She became dull and lethargic and would stand statue-like for hours in catatonic rigidity. She also had *flexibilitas cerea*. She refused food and drink and had suicidal tendencies. Spoon-feeding and tube feeding were necessary. Several courses of electro-convulsive therapy were given, and at times she was pleasant and would converse a little in a low voice. The prognosis, however, was bad, owing to the early age at which she had become mentally ill.

The second patient, a female typist, aged twenty-two years, had been born prematurely, being the eighth child in the family. Her early life was uneventful, though she lacked initiative and was rather asocial. Shortly before her admission to hospital she lost interest in affairs, said that noises hurt her and wanted only to lie idly in bed. She developed ideas of reference, saying that people in the street talked about her, and complained of pains in the arms and in the head. She had delusions of being influenced by wireless or electricity, indulged in day-dreams and showed general apathy. Several courses of electro-convulsive therapy were given, but produced only partial relief. She still felt inferior, talked in a hushed voice and said she would never be any better. She lacked drive and was considered to have an inadequate personality; there was possibly an inbuilt neuronal weakness caused by the prematurity. The prognosis was bad, in view of the persistence of the maladjustment to life.

The third patient in this group was a dressmaker, aged twenty-seven years, who had had an unhappy home life. Her mother died in a mental hospital, and she was reared by her grandmother. She was a reasonably good scholar, but was a lonely girl, played no sport and could not decide on her career for a long time. At the age of eight years she had a mental illness, said that she wanted to die and would not eat. Since then she had had several attacks of depression. Four months before her admission to hospital her grandmother had died, and the patient's condition had steadily deteriorated. One day, while walking down Pitt Street, she kicked holes in a plate glass window. She became mute and apathetic and made no effort to do anything for herself; she was untidy in appearance and inclined to be impulsive. She underwent more than one course of electro-convulsive therapy, but had not responded very well. She lacked drive, had an inadequate personality and probably was the type with inbuilt neuronal inferiority. The prognosis was not good because of the early age of onset of her illness.

(To be continued.)

NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioner has been released from full-time duty with His Majesty's Forces and has resumed civil practice as from the date mentioned:

Dr. J. B. Dowe, 201, Macquarie Street, Sydney (September 13, 1948).

Post-Graduate Work.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

PROGRAMME FOR FEBRUARY, 1949.

Lectures by Professor L. S. P. Davidson.

PROFESSOR L. S. P. DAVIDSON, Professor of Clinical Medicine in the University of Edinburgh, will deliver the following two lectures in the Medical Society Hall, 426, Albert Street, East Melbourne, at 8.15 p.m.: Tuesday, February 8: "Hæmatology: The Diagnosis and Treatment of Anæmia." Thursday, February 10: "Rheumatoid Arthritis: Its Ætiology, Diagnosis and Treatment."

The fee for the two lectures will be £1 1s. Resident medical officers may attend at half rates. These two lectures will take place during the following series arranged by Dr. J. A. McLean, and will be covered by the fee for the latter course.

Course in Hæmatology.

A course in hæmatology suitable for candidates for examinations for the M.D. Part II and M.R.A.C.P. will be held on Tuesday and Thursday afternoons of the first three weeks of February, 1949. The course will include lectures, demonstrations of patients and laboratory demonstrations. The fee will be £3 3s. Further details are obtainable from the offices of the Post-Graduate Committee.

Lectures in Gastro-Intestinal Disorders.

Dr. M. V. Clarke will lecture on gastro-intestinal disorders at 2 p.m. on February 28 and March 7, 1949. These lectures will be supplementary to those given in the course conducted by the Royal Australasian College of Physicians in March. The fee will be £1 1s.

General Practitioners' Course at Ballarat.

A course for general practitioners will be held at the Ballarat Hospital on February 19 and 20, 1949. The lecturers

will include Dr. H. Eddey, Dr. K. J. Grice, Dr. R. S. Hooper and Dr. Alan Penington. The fee will be £2 2s. Enrolments should be made with Dr. C. E. Richardson, 632, Sturt Street, Ballarat. Telephone 1715.

Demonstration at Port Fairy.

A demonstration will be given at Port Fairy at 8 p.m. on February 19, 1949, by Dr. W. McI. Rose on "Intravascular Thrombosis". The fee is 10s. 6d. Enrolments should be made with Dr. F. J. Hetherington, 30, Liebig Street, Warrnambool. Telephone 247.

Demonstration at Flinders Naval Depot.

A demonstration will be given at Flinders Naval Depot at 2.30 p.m. on February 9, 1949, by Dr. J. Grayton Brown on "Varicose Veins", by arrangement with the Royal Australian Navy.

Applications for Courses.

Applications for attendance at metropolitan courses should be made to the Secretary of the Post-Graduate Committee, 426, Albert Street, Melbourne, two weeks before the commencement of the course.

COURSE IN DERMATOLOGY.

A course of ten clinical lectures and demonstrations suitable for general practitioners, arranged by the British Association of Dermatology and Syphilology (Victorian Branch), will be conducted in March on Tuesday and Thursday afternoons at 2 p.m. The fee for this course is £5 5s. Application for enrolment should be made as soon as possible to the Secretary of the Post-Graduate Committee, from whom further details may be obtained.

The Royal Australasian College of Surgeons.

Final Examination for Fellowship.

THE next meeting of the court of examiners for the final examination for Fellowship of the Royal Australasian College of Surgeons will be held at the College in Melbourne, beginning on Monday, May 23, 1949. Candidates who desire to present themselves at this examination should apply, on the prescribed form, to the censor-in-chief for permission to do so on or before April 1, 1949. The appropriate forms are available from the Secretary of the Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1. Candidates who have been approved by the censor-in-chief, but who have not yet presented themselves for examination, or candidates desiring to present themselves for reexamination, may do so, provided they notify the Secretary by April 1, 1949. The examination fee is £21, and must be paid to the Secretary by April 1, 1949.

Post-Graduate Course in Surgery.

Subject to a satisfactory entry being received, the Royal Australasian College of Surgeons will conduct, in Melbourne, a post-graduate course in surgery. It will begin on Wednesday, February 16, 1949, and will cover a period of approximately thirteen weeks. The course is suitable for all graduates who wish to undertake post-graduate study in surgery and it is not designed solely for those desiring to present themselves for senior surgical qualifications. Lectures and lecture-demonstrations will be arranged in the surgical specialties. These will be announced in detail following the receipt of entries, which close on February 9, 1949. Lectures and lecture-demonstrations in pathology will also be arranged. A detailed syllabus is available on application.

The fee for the course is £31 10s., and should be forwarded with entries.

Post-Graduate Afternoons: Prince Henry's Hospital, Melbourne.

Under the auspices of the Royal Australasian College of Surgeons, each Friday afternoon from February 4 to November 25, 1949, inclusive, will be devoted to post-graduate education in surgery at Prince Henry's Hospital, Melbourne. All graduates are eligible to attend, and those desiring to do so must register with the Secretary, Royal Australasian College of Surgeons, Spring Street, Melbourne.

At 2 p.m. on each Friday a demonstration of pathological specimens will be given by Dr. J. D. Hicks, Director of Pathology at Prince Henry's Hospital.

The following syllabus of lectures and operative demonstrations, beginning at 2.30 p.m., has been arranged:

February 4: "Retropubic Prostatectomy", J. B. Somerset; February 11: "Carcinoma of the Cervix", R. G. Worcester; February 18: "Obstruction of Bile Ducts", G. W. Ashton; February 25: "Umbilical Hernia", J. D. Begg; March 4: "Innocent and Doubtful Thickenings in the Breast: Diagnosis and Treatment", A. J. Trinca; March 11: "Carcinoma Mammæ: Radical Mastectomy", A. J. Trinca; March 18: "Operations for Inguinal Hernia", A. J. Trinca; March 25: "Fistula-in-Ano", lecture and operation, A. J. Trinca; April 1: "Fractures of the Hand", E. F. Harbison; April 8: "McMurray's Osteotomy", J. Jens; April 22: "Abnormalities of Testicular Descent", C. Ley; April 29: "Bilateral Renal Calculi", J. B. Somerset; May 6: "Abnormalities of the Gall-Bladder: The Operation of Cholecystectomy", A. J. Trinca; May 13: "Subtotal Thyreoidectomy", A. J. Trinca; May 20: "The Physiology and Pathology of the Peritoneum: Appendicectomy", A. J. Trinca; May 24: "Perforation of Peptic Ulcers: Treatment", A. J. Trinca; June 3: "Carcinoma of the Breast", D. Donald; June 10: "Gastrectomy for Ulcer", F. Burke; June 17: "Endometrioma", R. G. Worcester; June 24: "Operative Treatment of Varicose Veins", G. N. Morris; July 1 and 8: "Inguinal Hernia", Henry Searby; July 15, 22 and 29: "Goitre", Henry Searby; August 5: "Diverticulitis: Closure of Colostomy", A. J. Ahern; August 12: "Recurrent Shoulder Dislocation", J. Jens; August 19: "Carcinoma of the Rectum", T. O. Sayle; August 26: "Obstruction at the Thoracic Outlet", S. Reid; September 2: "Carcinoma of the Breast", Henry Searby; September 9: "Gastric Ulcer", Henry Searby; September 16: "Duodenal Ulcer", Henry Searby; September 23 and 30: "Gall-Bladder", Henry Searby; October 7: demonstration of X-Ray Films, K. Hallam; October 14: "Recent Advances in Chest Surgery", H. Wilson; October 21: "Cholecystectomy", G. N. Morris; October 28: "Inguinal Hernia", G. G. C. McKenzie; November 4: "Genito-Urinary Tuberculosis", Henry Mortensen; November 11: "Bladder Neck Obstruction", Henry Mortensen; November 18: "Tumours of the Urinary Tract", Henry Mortensen; November 25: "Stone in the Urinary Tract", Henry Mortensen.

The Royal Australasian College of Physicians.

Eleventh Annual Meeting.

OWING to the difficulties in transport between Australia and New Zealand it has been decided to postpone the meeting which was to have been held in Auckland in February, 1949. The eleventh annual meeting will now be held in Sydney on Thursday, Friday and Saturday, May 26, 27 and 28, 1949.

Examination for Membership.

An examination for membership of the Royal Australasian College of Physicians will take place in April-May, 1949. The written examination will be held in capital cities of the Commonwealth where candidates are offering. The clinical examination will take place at Sydney. Only those candidates whose answers in the written examination have attained a standard satisfactory to the board of censors will be allowed to proceed to the clinical examination.

The written examination will be conducted in capital cities on Saturday, April 30, 1949. The clinical examination will be conducted at Sydney on Monday, Tuesday and Wednesday, May 23, 24 and 25, 1949.

Applications to appear before the board of censors should be made in the prescribed form and must be in the hands of the Honorary Secretary of the College not later than Saturday, April 2, 1949. Application forms are obtainable from the Honorary Secretary, 145, Macquarie Street, Sydney.

Sims Commonwealth Travelling Professor, 1949.

Professor G. W. Pickering, M.A., M.B. (Cambridge), F.R.C.P. (London), M.R.C.S. (England), has been appointed the Sims Commonwealth Travelling Professor for 1949, and in accordance with the terms of his appointment will visit Australia and New Zealand early next year to carry out a programme of post-graduate teaching.

Professor Pickering, who is professor of medicine in the University of London and the director of the medical clinic

at Saint Mary's Hospital, will visit New Zealand during the early part of his tour and will then visit all States of the Commonwealth. His itinerary will be as follows: Sydney: Thursday, January 27, to Friday, January 28. New Zealand: Saturday, January 29, to Saturday, March 5. Sydney: Saturday, March 5, to Thursday, March 17. Brisbane: Thursday, March 17, to Thursday, March 24. Melbourne: Thursday, March 24, to Saturday, April 9. Hobart: Saturday, April 9, to Friday, April 15. Adelaide: Friday, April 15, to Friday, April 29. Perth: Saturday, April 30, to Sunday, May 8.

The programme will include the delivery of lectures in the capital cities of each State of the Commonwealth and in certain cities of New Zealand, and, where it is possible, residence for a few days by the visiting professor in the chief clinical schools.

Correspondence.

POLICE OFFENCES (AMENDMENT) ACT OF NEW SOUTH WALES.

SIR: A number of telephone requests have been made to the department by pharmacists who have been presented with prescriptions containing drugs to which the above-mentioned act applies, written by medical practitioners registered under the laws of other States of the Commonwealth.

The purpose of this communication is to point out that no provision exists in the drug laws of this State whereby such prescriptions may legally be dispensed.

Regulation 17 (1) provides "that no person other than a medical practitioner authorised under Regulation 8 to procure and be in possession of any drug or a registered veterinary surgeon similarly authorised shall issue a prescription". "Medical practitioner" means a legally qualified medical practitioner registered under the *Medical Practitioners Act*, 1912, of New South Wales.

In view of all the circumstances, perhaps you would be so good as to give publicity to this matter through the medium of your journal.

Yours, etc.,

S. L. ANDERSON,
Under Secretary.

Chief Secretary's Department,
Sydney,
December 13, 1948.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Coolican, Raphael Francis Edward, M.B., B.Ch., 1947 (Univ. Dublin), Richard Street, Bourke.

Sussman, Ewen, M.B., B.S., 1946 (Univ. Sydney), 7, Cremorne Road, Cremorne Point.

Notice.

THE AUSTRALIAN RED CROSS SOCIETY.

THE National Council of the Australian Red Cross Society, through its National Blood Transfusion Committee, has arranged a scientific meeting on blood transfusion which will be held at 8.15 p.m. on Friday, February 4, 1949, at the lecture theatre of the pathology department of the Women's Hospital, Melbourne (entrance in Swanston Street). The following papers will be delivered: "Intravenous Therapy in Major Surgery", Dr. E. Drevermann; "Some Aspects of Iron Metabolism", Dr. R. J. Walsh.

The meeting is being held in conjunction with the half-yearly meeting of the National Blood Transfusion Committee, at which all State directors of the Red Cross Blood Transfusion Service will be present, together with other medical representatives of the blood transfusion services. The National Council of the Australian Red Cross Society desires to issue a cordial invitation to members of the British Medical Association to attend the scientific meeting and to take part in the discussion.

Diary for the Month.

JAN. 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JAN. 11.—New South Wales Branch, B.M.A.: Council Quarterly.
JAN. 13.—South Australian Branch, B.M.A.: Council Meeting.
JAN. 13.—Victorian Branch, B.M.A.: Organization Subcommittee.
JAN. 14.—Queensland Branch, B.M.A.: Council Meeting.
JAN. 17.—Victorian Branch, B.M.A.: Finance, House and Library Subcommittee.
JAN. 18.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JAN. 20.—Victorian Branch, B.M.A.: Executive Meeting.
JAN. 26.—Victorian Branch, B.M.A.: Council Meeting.
JAN. 28.—Queensland Branch, B.M.A.: Council Meeting.
FEB. 1.—New South Wales Branch, B.M.A.: Organization and Science Committee (with representatives of Special Groups).
FEB. 2.—Western Australian Branch, B.M.A.: Council Meeting.
FEB. 2.—Victorian Branch, B.M.A.: Branch Meeting.
FEB. 3.—South Australian Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

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